

CONSOLIDATOR

R. H. FLEET

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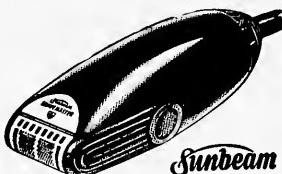
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CONSOLIDATOR



JANUARY • 1939

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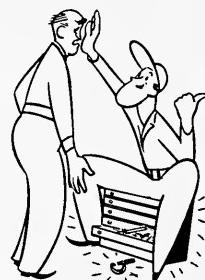
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SAY "I SAW IT IN THE CONSOLIDATOR"

CONSOLIDATOR

Volume 4

January, 1939

Number 1

SERVICE AWARDS

NO sooner had we reported that the total airplane experience of *Consolidated* employees who had been with the company over five years, added up to approximately 2,000 years of cumulative airplane experience, than along comes Major Fleet and upsets the figure. On Thursday, December the 22d, Major Fleet, in what is now an annual event, made the award of service pins to some 51 of the employees. Nineteen of these had, by continued service to *Consolidated*, hoisted their service from the five, to the ten-year classification. While thirty-two new service pin winners reached the five-year group. Thus in appropriate fashion was tabulated some 255 years of service to *Consolidated*. Each year brings in more new employees who have earned their five-year service pins, and more step up into the higher groups. The years certainly roll by!

Greatly appreciated on the occasion were the several lively numbers given by the Bonham Bros. Senior Boys' Band under the direction of Jules Jacques.

Those whose service now extends beyond ten years thru the awarding of pins by Major Fleet on December 22, include:

S. C. McGuiness, Kurt Klein, Garner G. Green, H. I. Mandolf, J. L. Kelley, M. E. Taylor, W. B. Wheatley, H. V. Atkinson, Irma K. Robbins, Agnes C. Howard, A. J. Dolan, R. B. Dilling, T. P. Butterfield, R. A. Bussey, R. C. Hager, F. W. Borneemann, A. H. Sprenger, R. J. Hartmayer, C. V. Duddinski.

Those added to the five-year service pin group include:

R. K. Whitney, Leta P. Davis, Robert Lamont, E. H. Watts, J. L. Theuws, H. E. Weihmiller, Otto C. Voss, E. P. Ehler, David R. Kern, W. C. Bowlen, W. H. Hassler, F. A. Rosso, H. A. Fink, Chas. C. Farnsworth, Leslie L. Wade, R. R. Biddle, A. Stieringer, B. M. Sheehan, H. D. Naseef, M. E. Aldrich, C. M. Szymczak, M. C. Hottelman, N. J. Hayman, K. F. Edelmaier, Leo Budzynski, E. F. Merlau, F. J. O'Connor, J. L. Weaver, Frank Cary, W. J. Gramse, A. F. Rohloff, Harry E. Walters.

THERE are some among the ranks of *Consolidated* who are genuine flying enthusiasts and they manage to do some flying week after week. There are others who fly only occasionally. But the greater majority of us with the human power to put things off, never seem to take a flight at all, yet the experience of an occasional flight is an unparalleled source of development of the powers of observation, and valuable to everyone. Flying rather opens new vistas for ground exploration and for understanding the human problems, wrapt as they are in the city and the surrounding country.

Coming and going to and from work we are apt to travel along the same set of streets and corners day after day. We are apt to feel from our observation of the new buildings being constructed, that the city of San Diego is filling up with surprising rapidity. This is particularly true if you travel back and forth along the central streets all the time. But have you ever taken time out from your customary peregrinations to look down on this same day after day route from the air? From the vantage point of the air it will be seen that most of the growth has taken place along these streets or immediately adjacent to them. A surprising amount of vacant territory still exists right in the heart of the city. More than 50% of the areas of some sections are perfectly blank canyons.

If you have home-building ideas stirring around in your noodle, perhaps an aerial hop will spot for you a bit of canyon where a lot could be purchased most reasonably, be close to stores, schools and other requisites, landscape beautifully and be out of the way enough to provide the seclusion of a retreat.

Another eye-opener, if you are one of those devoted to a Sunday drive for relaxation, is to spot your favorite drive and look down on it from the air. You will soon discover perhaps a dozen little roads leading off here and there that you didn't even suspect existed when you traveled over this route on land. Keep them in mind and the next time you are driving that

way, take in a few side trips. San Diego county probably contains more interesting and different spots that can be reached only by taking a side road, than any other county in the United States, and an occasional view from the air is the real way to discover them.

If you've only taken enough flights to say that you've been "up" in an airplane, start extracting more of the observation possible from such a flight and forget the "feel" of a first flight. Best of all, get a group and go up. Tell the pilot what neck of the woods you'd like to circle over, and then locate familiar spots. You'll be surprised how different they appear from the air. If you're a hunting enthusiast, spotting a new hunting ground or an easier way of getting to your favorite stamping ground is a possibility from an occasional flight. If you're one of those who has a pretty good opinion of your home as compared with those in your neighborhood, boy, what a deflation of ego awaits your first aerial view of it, and what a stimulation of pride at the same time! But most of all don't be a Gump . . . don't put it off! Take a flight occasionally.



SAN DIEGO FLYING CLUB

Now that the rainy season is here, members of the club are "laboring" on the runways and roads at the airport with a grader obtained by Mr. Anderson. The main runway has been made nearly 100 feet wide and lengthened more than 300 feet. The road along the west end of the field has been graded and changed from across the middle of the field, to the south end of the runways, removing the hazards of cars colliding with planes.

The following were voted in as members of the club: C. Wagner, Ladd, A. Rakestraw, W. Rakestraw and Mr. Truman. Melvin Knutson has been elected treasurer in charge of ship operations. Hulick, Goodyear and Testa soloed recently and "Skike" McCannon is busy revamping his speed job.



Few things are impossible to diligence and skill.—Johnson.



WE welcome to *Consolidated* and the Navy Inspection staff, Mr. Henry P. Zickgraf who, for about three years prior to coming to *Consolidated*, has been stationed at North Island in the Engineering Section of the Inspection Service, Bureau of Aeronautics.

Mr. Zickgraf has a record of nearly 20 years experience in aircraft and has been associated with the work of both heavier-than-air and lighter-than-air craft construction and inspection. He was, as a matter of fact, connected with the Thomas Morse Co. before it became a part of *Consolidated* and he was with the Curtiss Co. at both Hammondsport and Buffalo. For the past 15 years Mr. Zickgraf has been connected with the Bureau of Aeronautics, Inspection Service. Some of this time was spent at the Chance Vought Corp., at the L. W. F. Engineering Corp., and the Glenn Martin Co. About five years of this time was devoted to lighter-than-air craft when he was stationed at Akron, Ohio, during the construction of both the Akron and the Macon. Later he was stationed at the Sunnyvale Air Base. Mr. Zickgraf is not entirely a stranger as he has been in San Diego three years and some of our personnel have already made his acquaintance during his work at North Island.

AERO CLUB . . .

WITH the election of five new directors at our annual business meeting December 12th, the Aero Club of San Diego completed its fiscal year 1938. The five who were elected to office filled the vacancies created by an equal number of directors who are retiring from our panel this year. Messrs. Jackson Hicklin, E. F. Hoffman, Douglas Kelley, R. G. Mayer, and Earl Prudden are the five new directors who have just been elected to three-year terms each.

The activities of our club during the past year are worthy of more than passing notice. In the spring of the year, a petition was circulated requesting the National Aeronautic Association to issue a charter accepting our organization as an affiliate. This petition met with spontaneous acceptance and practically overnight the Aero Club of San Diego blossomed out to become one of the largest clubs of its kind in the United States. This placed an unusually heavy burden on the directors and administrative staff of our club to carry the interest and activity which came into being at that time.

The club activities during the past year have been highly interesting, entertaining, and beneficial to all of our members and their guests. Speakers of national and world repute have been our guests on various evenings to bring their experiences directly to our members. At other times we have been privileged to see motion pictures of flying activities not generally witnessed by the average person, and through our contacts with the National Aeronautic Association and its publication have been able to keep abreast of the latest developments in aeronautical circles.

During the coming year, a program rivalling that of last year has been arranged, will serve the useful purpose of broadening the knowledge of aeronautics, and provide an interesting and entertaining means of so doing.

To our many members and friends who are employees of the *Consolidated Aircraft Corporation* we extend our best wishes for a Happy and Prosperous New Year.

J. H. Waterbury, Sec.

And while we are in Scotland, the master of the sloop, "Annie Laurie," ordered seaman Sandy McDonald to climb out on the bowsprit and haul in a trailing halyard. "Ah'll do nothin' o' the sort," protested Sandy, "Ah signed on tae sail before the mast, no' before the ship."

Tool Resolutions

To somehow and somewhere find a calendar to do justice to our crib wall, (and it must be a very pleasing one). 2. To help McGinness win a golf game once. (He'll appreciate it so much.) 3. To make Jimmy Meyers finally buy that new car and take those hunting trips he has planned for so long. 4. To lessen the chances of a dull and uninteresting year we should all help Dan Cupid in putting those 10 bachelors where they belong (this should be a lot of fun for someone). 5. To teach "Willie" Weaver to get over his "mike" fright and remember a radio isn't like a telephone! 6. To make this year a truly happy one for all concerned. No. 1257.

Will someone loan Curley Knight a pair of military brushes?

Please tell us why Santa Claus forgot Joe Williamson's new suspenders?

Badminton

Since we have had the five nets in San Diego High School Gym, those who have attended so far have played: Singles, 47 games; Doubles, 17 games. We hope to have more attend after the holidays. Of course, Bowling and Basketball take up two evenings for some of us but the wives and lady friends would, perhaps, enjoy a game. It is a grand chance for us to meet our fellow workers and become better acquainted. Will be looking for you January 4, 1939, and each Wednesday at from 7:00 to 10:00 p.m. We can arrange a tournament for those who wish to play. Let's hear from you.

The Committee,

E. C. Terry,
J. Bowley,
J. Lockwood,
C. F. Henninger,
W. C. Gilchrist,
F. L. Kastelic.

Final Findings

T. B. Hill (7102)

It seems as though Jack Kline and Dave Lemmon have tried to start a new fad in Final Assembly but to date no one has followed their example. No one else seems to be interested in breaking their arm.

The Final Assembly basketball team is getting under way with its practice now. There are still some openings for good players.

Larry Casselman is still keeping his mustache in trim.

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J. E. DRYER, PRES.



LOWDOWN ON THE LADIES

Hello girls!

Well, our eagerly anticipated and highly successful Christmas Party is now an event of the past. Everyone agrees that a "wonderful time" was had by all. It has even inspired me poetically (?) and, therefore, with apologies to Messrs. Longfellow, Emerson and Poe (and also Mary Livingstonstone), I present:

'Twas Friday the sixteenth of December—
A night we will all long remember!
Each girl to the party her newest gown wore—
And the funmaking started with cocktails galore.
The turkey was luscious—a wonderful dish—
But, alack and alas, I had to eat fish!
Florence and Blanche played music so fine—
("A Tisket A Tasket" and "Sweet Adeline")!
Some of us joined in "singing" each song—
Major Bowes would, no doubt, have had use for
his gong!

Louis in a costume both novel and flashing—
Danced a fandango—"twas earnest—"twas dashing!
A group of the girls in a gay festive mood
Did a "chorus girl" number—"tween courses of
food!

A wire from Dorothy was received and read—
"Have a good time girls"—was what it said.
There were gifts in profusion beneath a huge tree—
Which were opened amidst shouts of great gaiety.
Our guests arrived after our dinner so grand
And we danced all the evening to Bill Miller's
Band.

My poetic impulse seems to have deserted me—but, seriously, it was a wonderful party.

We missed Eva, Mable and Dorothy and are sorry that they were unable to be with us.

When you read this column Christmas will be past—and another year will be born. Happy New Year! See you in 1939!

Catherine.



SAY YOU SAW IT IN
THE CONSOLIDATOR

The chief difference between a gum-chewing stenographer and a cud-chewing cow is that thoughtful expression on the face of the cow.



Life Goes Round in the Squirrel Cage

By Ed Stewart

Scene: The Squirrel Cage—Larry Boeing, chief squirrel, is inspecting a part. Music fills the air.

Larry: O sole mio—I am dejected,
O sole you—this part's rejected.

Enter a dispatcher, Mr. J. William Fleet.
Mr. Fleet: Larry, I am looking for
31X004, it is urgently needed at the X
building, is it here?

Larry: (Tune, Yankee Doodle)
We'll look hard for your little part
Because we're known for service,
But will you please get out of here
Because you make us nervous.

Exit Mr. Fleet.

Larry: (Tune, Lazy Mary)
I feel like throwing some parts around,
Parts around, parts around.
I feel like throwing some parts around,
Because it makes me happy.

Throws pan of parts through window
and on to floor of FPS, where they make a
resounding clatter.

Larry and Harry: (Tune, Captain Jinks)

Oh, we're the boys from the Squirrel Cage,
We'll put you in a terrible rage,
When we reject with our little gauge,
The parts so badly needed.

Larry: "I feel like jungle music."
Plays tom-tom effect on bench with various parts. The throbbing grows louder, as the curtain falls.

Consair Rod and Reel Club

We are looking forward to big things, especially fish, for the year 1939. Last year was considered very poor for this section of the country and we are sure many records will be broken by members of the club this year.

Now that the tournament is over, Alfred Johnson of the sheet department caught nine large bass on lake Henshaw, December 10th. The largest weighing five pounds, one ounce. He, without question, didn't want to show the boys up or hated taking a prize in our contest.

Bill Marckwardt and Don Wilcox drifted oceanward in their boat "Patricia" a few weeks ago and surprised the crew consisting of many club members, by pulling in a three hundred four pound black sea bass. This was the record catch for the year.

We hope within a few weeks to have a club meeting at which time prizes will be awarded the winners of our tournament of last year.

D.R.K.



And says the stern parent, "Tell Johnny he can mow the lawn today if he feels like it . . . and tell him he'd better feel like it."



*Refreshing!
Satisfying!
Non-fattening!*



Consolidated Philosophy

The purpose of life, stated in a sentence is simply to get the most out of it and to put the most back into it.

A fellow doesn't last long on what he has done. He's got to keep on "delivering the goods."

A reputation for good judgment, fair dealing, truth, and rectitude is itself a fortune.

Sincerity and truth are the basis of every virtue.

To be thrown upon one's own resources is to be cast into the very lap of fortune; for our faculties then undergo a development and display an energy of which they were previously unsusceptible.

Whether our salary be large or small remember that love, contentment and laughter are free and the realms of happiness are not within the contents of one's wallet, but within themselves.

Worry is interest paid on trouble before it falls due.

The conscientious plodder is nearly always outdistanced by the fellow who stops occasionally to analyze and plan.

To improve the golden moment of opportunity and catch the good that is within our reach, is the great art of life.

Think that day lost whose slow descending Sun views from thy hand no noble action done.

In the humblest mortal there is a throne room. Its door unfolds silently, magically, whenever one dares to be creatively useful; to benefit his kind by breaking new paths, building new structures, awaking new deeds and restoring new ideals.

Life is not so short but that there is always time for courtesy.

D.R.K.



The Chemical analysis of the Human Body . . .
Sulphur enough to rid a dog of fleas.
Lime enough to whitewash a chicken coop.
Fat enough for six bars of soap.
Iron enough for a six-penny nail.
Phosphorus enough for 20 boxes of matches.
Sugar enough for 10 cups of coffee.
Potassium enough to explode a toy cannon.
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—Submitted by R. Weidner.

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Give 'em the Air . . .

WITH the new drop-hammers to be installed in the new drop-hammer shop, comes the necessity of "giving 'em the air," for they're to be pneumatically operated and machines of their size require considerable compressed air for their operation. Just as a matter of comparison you've probably had to tussle with the air requirements of a flat tire on a lonely road and in so doing you had to supply roughly a cubic foot of air at somewhere around 40 pounds to the square inch and it probably took you in the neighborhood of five minutes to cram the air into the tire via a hand pump. No little work was involved as you well know. . . .

To supply the new hammers, however, you really climb into the big figures and your little cubic foot of air at 40 pounds looks rather weak. The hammers can lift a die weighing several tons many times a minute, and they do it with compressed air. To satisfy the needs of the machines, Bill Maloney and his crew of plant engineers spent considerable time planning, consulting and arranging. The outcome was the installation of the big, new, two-stage Worthington air compressor now located just north of the main plant building boilers. This single machine, powered with a 200-horsepower electric motor, is capable of delivering 1,150 cubic feet of air compressed to 100 pounds to the square inch, per minute, and will keep this up continuously. It is now fully connected with the compressed air system of the plant and comfortably doubles the former potential air compressor capacity.

The older compressors are four in number. Three single-stage compressors have a capacity of 225 cubic feet at 100 pounds to the square inch per minute, and the remaining compressor 450 cubic feet per minute. The output is thus 1,125 cubic feet per minute from these compressors, as against the 1,150 for the big new two-stage.

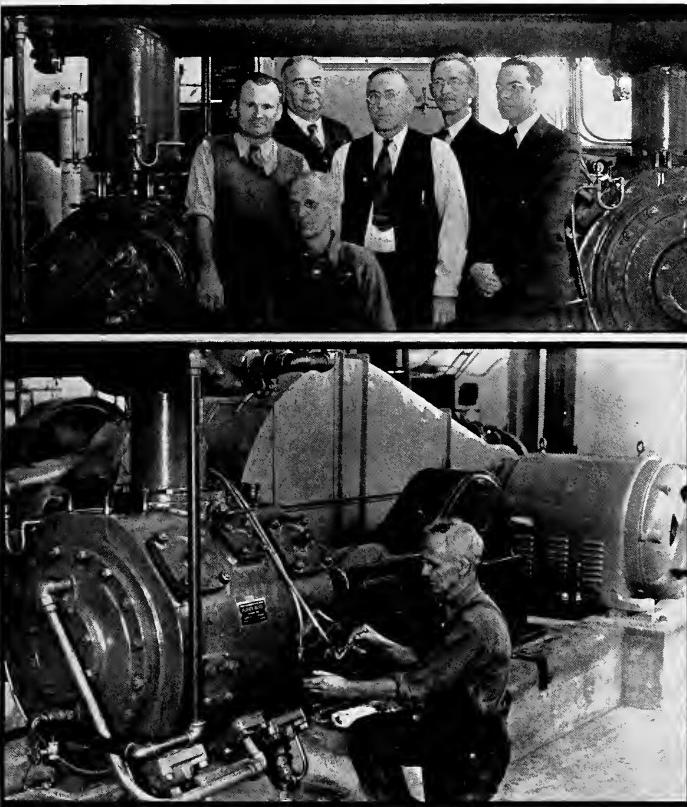
Installing such a big piece of machinery and getting it hooked into an existing air system, isn't just an over-night task. A complete system must be laid, foundations must be specially constructed and there are many considerations which at first glance do not come to mind. Into the foundations went 27 cubic yards of concrete, or sufficient concrete for over 100 yards of double, two-foot wide driveway, 3 inches thick. To anchor down the compressor, 28 bolts were used, and an adiomatic 8 for the motor. These were run thru three-inch pipes about three feet

long, set vertically in the foundations. They were secured at the bottom of the pipes and were free to be sprung to any side of the pipe at the top. When set in their proper locations, pipe and all, the concrete of the foundation was poured around them. When the concrete was hard and ready for the machine, the compressor was lowered into place. It was then possible to spring each bolt as necessary to get it to fit and to take care of any irregularity in the concrete pouring. Slipped onto the bolts, the compressor was leveled up with wedges somewhat above the set concrete, and then grout was run in under all portions of the complete assembly and down into each pipe. The foundation thus became one solid piece, perfectly level and with the concrete holding the bolts from every angle.

Had the bolts been anchored directly in the concrete at the outset in all probability considerable trouble would have been experienced in slipping the heavy machinery down over them. With the bolts anchored in the pipes, but left free to swing however, no difficulty was encountered.

The big compressor, works on the two-stage principle. Air, sucked from the filters near the roof thru a ten-inch pipe, enters the first stage compression cylinder and emerges at about 28 pounds to the square inch. It then passes thru an inter-cooler to the second, or high compression cylinder. From the second cylinder it emerges at a pressure of 100 pounds to the square inch and considerably warmed. You've probably noticed that in compressing your little cubic foot of air in your tire, that the walls of the pump near the discharge end, became considerably warmed. This same thing happens in the big compressor, only more so. If the normal air temperature is about 72 degrees at the intake of the compressor, it comes out of the high compression cylinder in the neighborhood of 350 degrees, despite the fact that it has been cooled by the inter-cooler between stages of compression. To bring the air temperature down from 350 degrees it is passed thru an after-cooler. Water circulates thru the after-cooler as the coolant and reduces the air temperature to about 78 degrees.

The water used in cooling the air is of course heated in passing thru the coolers and is piped from here to the anodic department for use in the washing and rinse tanks and also to the plating department before it is discharged. By this means the



Above: Those responsible for the installation of the new compressor, left to right, Robert Combe, Joe Giovanoli, Henry Fink, plant engineer "Bill" Maloney, Jim Kite and, kneeling, Levi Ulery. The high compression cylinder is on the left, low compression cylinder on the right, and intercooler overhead. Below: Ulery tightening up one of the compressor's control lines on the large first stage compression cylinder. The two hundred H.P. motor is to the right and the housing for the flywheel in the center.

water serves a dual purpose, cooling the air and providing warm water.

Since water in compressed air is undesirable from many angles and would cause considerable trouble, particularly in spray painting, it is trapped out at both the inter-cooler and the after-cooler. It is also trapped out in many other locations throughout the plant to prevent its entry into machinery and spray guns. The air thus delivered to any portion of the plant and put into use, has been wrung quite dry.

There are several automatic features of the big compressor which are of added interest: While the 200 horsepower driving motor has plenty of power, starting up against a pressure of 100 pounds to the square inch is not as easy as it sounds. The total pressure in the two cylinders mounts to several tons and would throw a tremendous load on both the motor and the electrical system. The compressor is fitted with a device which makes this

initial load unnecessary, however. This is an automatic unloader which cuts out the pressure when the compressor is stopped and keeps it out until it has gained motion. At operating speed the inertia of the large flywheel smooths out the peak loading against the motor, resulting from the compression, and helps to carry over this point. The unloader is also made so that the compressor can be run entirely without loading. Or it can be set to operate at 25%, 50%, 75% or 100% capacity and thus operate economically.

On Friday, December 10th the big compressor was run without load for a number of hours so that the cylinders could be "run-in" and all devices checked for proper functioning. Now, all slicked up, anchored securely and connected in with the rest of the compressed air supply system, the new two-stage compressor, when the demand comes, is all set to, "Give 'em the air."

Consairians About Town

By Fink

JAMES A. HURLEY died suddenly on November 19th. He is survived by his wife and two daughters. James Hurley, Jimmy to us, worked with us for about two years. Jimmy was extremely well liked, a fine fellow and a good sport. We, friends of Jimmy's, are deeply moved by his sudden parting and offer our heartfelt sympathies to his wife and children.

"Red" Duffy, Tank Dept., seems to have had the luck of the Irish turn against him. With that bowling score of 100 and the 13 to 7 defeat of Notre Dame by U. S. C., Duffy's luck just about gave out.

"Brad" Bradshaw, man-about-town, horse race authority, small bet maker, and wanna-buy-a-chance man, has now added another money-making scheme to his list. He is now an Automobile Insurance Salesman. Brad ought to put an ad in the *Consolidator*, it might help his sales.

"Bill" Gramse, Draw Bench Dept., can be found each evening at home listening to Amos and Andy, so that he will have something funny to tell the Draw Bench Morning Congressional Delegation. Our congress convenes at seven-thirty at the sound of the musical t-o-o-t.

"Tex" Graham, Draw Bench Dept., former employee of a cleaning establishment lived up to his former trade. Tex took some of the boys to the cleaners on that Notre Dame-Univ. of Southern Calif. game. I hope you get what I mean.

Cop
Policeman: As soon as I saw you come around the bend I said to myself. "Forty-five at least."

Woman Driver: "How dare you? It's this hat that makes me look so old."

Caddy
Says we to the caddy. "What was the score on that last hole? I can't remember." Replies the heartless wretch, "Musta been over eight. You'll remember if you ever get that low."



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WING KEYHOLE

By Browne

THE Wing Bowling Team stands well in line for the championship of Con-sair. Capt. Earl Edwards averages 170. Steve Smith 170. Leo Danner 163. Paul Di Giulio 158, Wm. Armstrong 151. Friday, Nov. 9th, it looked as though the Wing Bowling Team would win over Production by four lengths, but Armstrong fell down on the stretch and we only won by three lengths, which was a wide enough margin.

Whenever Steve Powell slows down (very seldom) he stops by his desk for a shot of that "High Octane Coffee" he keeps in his bottle.

Craig "Sledgehammer" Clark asked "Army" Armstrong to help with some building over the week-end. Monday Army came in with a smashed thumb. Army claims he was five feet away when Sledgehammer Clark struck the blow.

"Pop Gun" Petit and "Hairless Her-
rick" Drake of the Tails are reported to be joining the National Guard Anti-Air-
craft Division. Why build 'em if you're
going to shoot 'em down, boys?

Resolutions:

Stephen Powell: go to a show twice a week. Stephen Smith: to learn to like San Diego cops. Henry Hatch: to start an A-1 junk yard. Leo Klingenmeier: to spend my money on a new home instead of the boys' hot tips. Charlie Wegner: to have only one boss at home, myself. Frank Heide-mann: no more bets. Dick Bartlett no more flat jokes. Elmer Gahlbeck: no more hair-cuts from wife. Jack Campbell: to play horses. Tommy Guarinotta: was going to play. Ray Brady: to start another Hill-billy Band. L. Mineah: stop beating 'round the Mulberry bush! Jack Horner: buy three new cars. Bill Bowlen: to let a real mechanic fix his car.

Earl Sheehan of the rivet crib is to be commended on the black and silver cigarette urns that made their appearance at various spots recently. They are of unique design and were finished in a workmanlike manner. Without being told, it is impossible to recognize the containers that once delivered primer to the plant.

Born to Mr. and Mrs. S. B. Jensen on December 14th, a 7½ pound baby boy . . . Richard Leslie. Congratulations Mr. and Mrs. Jensen!

"Baby Dumpling," Hopman, was initiated Saturday, Dec. 12th, into the Royal Order of the Abalone, when he was washed off a rock and into the cold deep blue sea. John and two other club mem-bers, Roger Johnson and Ronald Miller

were gathering the much-sought-after abalone. Seventy-six were bagged. Also several barked shins.

Kelman Aiken of the finish parts stores wishes to thank the planning department for their expression of sympathy on the occasion of his recent bereavement.

"Ten Nights in a Barroom" is very amusing but 51 weeks in the Inspection Crib is too long for my parts to stay, remarks Eddie Kellogg, so Boeing says: "Get the mould and cobwebs off those parts, Von Meeden, as we must get Eddie off on that vacation or he will be spending it in some quiet and secluded sanitarium."



Shades of Doc. Dafoe! Frank Learman, on the morning of Dec. 9th, found he was the recipient of a blessed event. And most probably the event took place right in his office, from all we can gather! The hummingbird (for it is gross inefficiency for a bird the size of the illustrious stork to deliver mousies to a mise) had deposited the three infant cat food inside a box of tissue residing in Frank's desk. Advice to those who get colds and use tissue, is not to have them or get a good one so that the whole box of tissue will be used up quickly. Lloyds of London, we understand, have just increased the rates of insurance against mouse triplets being born inside office desks!



Our genial reporter of affairs in finish, Max Goldman, recently took a week out to have his tonsils yanked. While he couldn't put out his full vocal power for a time, he missed most his desire to eat. Fortunately there has been no let-up in his reporting due to the tonsillectomy and some of his reporting appears in this issue.



TAIL SPINS

It's better for a woman to be two-faced than to be double-chinned.

There is no fool like an old fool acting like a young fool.

There is never much to see in a small town but what you hear makes up for it.

According to evolution, monkeys developed into men and ever since women have been trying to make monkeys out of them.

No doubt we'd have another sort of sit-down strike if the hens found out what the masons are getting for laying bricks.

The reason old maids never learned to fiddle is because they never had a beau.

James Harvey Roberts, 4402.

CROOKS and CURVES

By Ken Whitney and Petrus A. Carlson
Engineering Department

THERE have been lots of arguments about the question, "What is the most important part of an airplane?" Well, without the one, the other would not make the complete airplane. What is generally overlooked, tho, is the plumbing.

How important it is to have a reliable tube installation. Like the veins of the human body carrying the life-blood to maintain life, so do tubes in an airplane distribute fuel and oil to the engines to keep them going, to maintain flight. Tubes are also used to carry the information to the brain (pilot) to see that the operation is unfaltering.

The fuel in our PBY boats is supplied to the engines in $\frac{3}{4}$ -inch and 1-inch outside diameter tubing with .049-inch wall. Thru the tubes at times flow as much as 150 gallons per hour. In extreme cases, even more to each engine. That means that the speed of the gasoline thru the pipes is as high as 195 feet per minute. Now if we compare that with an average automobile and say we are driving at about 50 miles per hour and we get 18 miles per gallon, this gives a gas consumption of approximately $2\frac{3}{4}$ gallons per hour. So you can see, the amount of gas flowing thru the pipes in the PBY's is considerable. The length of pipe used in the fuel system is approximately 65 feet.

The engines don't only need gasoline, they also require oil for lubrication. This oil is supplied to the engines thru from $\frac{3}{4}$ -inch diameter to $1\frac{1}{2}$ -inch diameter tubing depending on where in the oil system the tubing is located. The oil flow thru these 37-foot lines is approximately $10\frac{1}{2}$ gallons per minute. Anyone who kind of sniffs at that oil flow ought to be close to one of those oil lines, to be cured for life, if it would burst. Thru care that is exercised and tests made at installation, there are very remote possibilities that the lines will ever burst, thanks to our tube-bending department and final assembly.

If for any reason a fire would start in a nacelle, all we do is pull the fire extinguisher. The carbon dioxide extinguisher bottle is stored in the hull and the gas is "shot" up thru $7/16$ diameter tubing to any one of the nacelles, whichever is on fire. Would it not be too bad if one could not depend upon that piping "shoot-

ing" the gas up to the engine nacelle? There is another 50 feet of piping used up. The carbon dioxide gas is stored in the bottle at 1800 pounds per square inch. The volume of free (at atmospheric pressure) carbon dioxide is 61 cubic feet and is discharged in 7 seconds.

To prevent ice from forming on the wings, tail surfaces and propellers, wing and tail de-icers and anti-icers for the propellers are used. The medium used to operate the de-icers is air. This air is supplied to the wing and tail boots thru $\frac{3}{4}$ and $\frac{5}{8}$ diameter tubing. The air has a pressure of from 9 to 6 pounds per square inch, and the volume required is about 30 cubic feet of free air per minute. For the $\frac{3}{4}$ diameter tube that would give a speed of approximately 13,000 feet per minute or 150 m.p.h. (miles per hour) for the air in the exhaust pipe, which is a pretty good "wind." To hold down weight to a minimum such small tubing as $\frac{3}{4}$ and $\frac{5}{8}$ is used. The only reason for being able to do so, is the minimum amount of sharp bends of the tubing at installation, so the pressure drop is held down to a minimum. Of course the use of a minimum amount of sharp bends is true for all piping.

The anti-icer for the propeller is a fluid (78% alcohol and 22% glycerine by weight or 85 parts alcohol and 15 parts glycerine) supplied thru $\frac{1}{4}$ diameter tubing from a pump to a slinger ring on the propeller hub. This slinger ring throws out the fluid on the propeller blades, and thus prevents ice from forming and sticking to the propeller. Total amount of piping used for the de-icer and anti-icer system is approximately 300 feet.

The instrument or "brain" lines are all the lines connected from a measuring instrument to a source whose function wants to be known. So we have the fuel pressure, oil pressure, engine manifold pressure, pitot and static lines, etc. To the instrument lines belong also the vacuum lines, which connect from the vacuum pump to the flight instrument driven by vacuum. The pressure lines are $\frac{3}{16}$ and $\frac{1}{4}$ -inch diameter and the vacuum lines $\frac{1}{2}$ and $\frac{5}{8}$ diameter. Length of instrument lines used is approximately 375 feet.

Due to vibration, tubes connecting to engines or instruments on shock mounted instrument panels have to have flexible connections. There we use short lengths of hose to connect the stiff line and engine or instrument. For convenience of installation, hoses are also used. Approximately 45 feet of hose is used.

Adding up the piping and the hoses we have approximately 872 feet. Although most of it does not carry much pressure



Upper—For the sake of the picture, a Rube Goldberg arrangement of PBY tubes. Nine of the tube pieces shown are dural, one is copper and two are rubber. The rubber are the two entwined on the left, one of which comes out of the large tube. The copper tube crosses over the large tube.

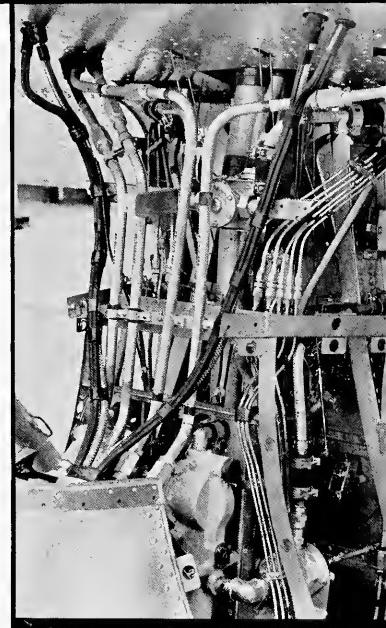
Below—Installation of tubes in the superstructure nose of the commercial No. 2 PBY. Note hose couplings and bonding braids.

and it is frail looking, particularly the $\frac{3}{16}$ and $\frac{1}{4}$ -inch, the $\frac{3}{16}$ tubing has a bursting pressure of 9,250 pounds per square inch, and the $\frac{1}{4}$ -inch 7,500 pounds per square inch and $\frac{1}{2}$ -inch 5,340 pounds per square inch.

Taking the number of different lines that must run thru the center section leading edge and the superstructure as typical examples, it is easily recognized that, without marking of the lines it would be hard and tedious to follow up and check the lines for right connections. Therefore a standard has been made up for line marking. It consists of painted bands around the pipes. These bands are painted around the pipes ever so often. Fuel is marked with red, oil yellow, fire extinguisher lines brown, airspeed black, manifold pressure lines white-light blue (two bands, one white and one light blue, one next to the other), vacuum white-light green, etc.

In the past, installation of tubing has usually been the last thing considered in an airplane design, because it has been possible to route tubing around structure and equipment. The latter being located in the positions preferred for its usage and serviceability. We are fortunate in having a good "Pretzel" department where crooks and curves are everyday creations and where a straight tube is a challenge to their ability.

No matter what the shape of the tube, it has to be carefully supported to minimize vibration of the structure and tubing. Excessive vibration would cause failure of tubing and may cause a forced landing. Supports are not only used as such, they are also used if possible to make electric contact or bonding, to the structure. Bonding is made to equalize the electric charges between all parts of the airplane. This is very necessary to reduce the static interference with the radio, to eliminate the possibilities of sparks going from one part to the other burning structure and possibly cause fire, and for personal safety.



In the new designs the tendency is to go to larger engines and more instruments, consequently there will be more and larger piping. At the same time, to get the maximum performance out of the airplane a minimum amount of room is allowed for piping. Therefore the piping is worked out in the mock-up stage of the airplane and considered together with the structure and equipment. That way the tubing will have a minimum amount of bends, which means shorter lengths and less weight. The ultimate goal is to change the "Pretzel Department" into a "Tube Cutting Department."

But the whole situation has changed, where once we were an eligible receiver, we are now a passer. As a somewhat undersized Santa Claus, we hold the sack for a pair of offspring whose tastes run to ties with dots in them, suits with stripes in them, and envelopes with checks in them.

And said the light housekeeping inmate of the boarding house. "Imagine that cat cutting the butter with a knife to make it look as if the landlady had stolen it."

NATURE STILL PREFERENCES FLYING BOATS . . .

By T. M. Hemphill

SOME time ago the author wrote "Nature Prefers Flying Boats" pointing out the fact that nature has generously dotted the country with lakes, rivers and reservoirs suitable for landing flying boats. At the time of the first writing, only those suitable water bodies below 38° latitude were shown. The accompanying map gives a more complete picture of the situation. Each circle shown indicates a body of water suitable for taking off or landing a large flying boat. All the suitable bodies of water are not shown. In some places they are so numerous, that the map would appear solid black if an attempt were made to indicate them all. Only the largest are shown in such cases. These are nature's seaport landing fields. Unfortunately, it appears to be a peculiar trait of men that they must do everything the hard way at least until competition with the elements or with other men forces them to take the natural course and we who build and fly aircraft are no exceptions. We are not going to take advantage of nature's seaports as long as we can exercise our skill and brawn providing airports even though in some instances our ingenuity is taxed to the limit to find a location which is at all suitable and practical.

As this country was developed at a time when transportation was still quite a problem our forefathers could not ignore nature's advantages and were of necessity forced to found their cities at points accessible by water. Consequently it is not surprising to find that our oldest and largest cities have fine harbors conveniently located to the heart of the town. People still do not go places where there isn't water, they can't. There must be at least a reservoir wherever there are any considerable number of people. Usually there are several large enough to land in. Why build airports?

Returning to the map, it is hard to pick a route across the country which does not have "seaports" as frequently spaced as the airline airports, and these seaports for the most part are free. How much easier it would have been from the beginning to have employed flying boats

on the transcontinental routes with smaller flying boats serving as feeders. There is hardly a point on the whole map which could not easily be reached by water craft or at least by a combination of water craft and car. Even summer resorts of any consequence are usually located on lakes or secluded bodies of water, easily accessible by air. It can be said in general that where there are people there is also water.

If our airlines had developed around flying boats instead of land planes other problems which have arisen would not have done so. For example, our coastwise airlines fly over the ocean, at least over part of their routes. While this practice is safe enough because of the reserve of power carried, there is always the possibility, however remote, of having to land at the nearest convenient spot which would be the water's edge. Unfortunately this inviting spot is usually rough enough to make short work of any land plane.

It might be supposed at first that seaplanes operating over land are in similar straits. However, this is not the case. In an extreme emergency, land planes will land on their belly with the wheels retracted because, by experience, this has proven to be the safer method. Flying boats are well suited to this type of landing since their hull bottom is designed to withstand landing shocks. In fact, seaplanes are more suited to emergency landing on land than landplanes are because the part that is designed for landing (the hull bottom) takes the shock. The wings, tail, propellers and other parts which must be designed to clear the water, will also clear the ground and small protuberances in an emergency landing on land. Consequently, these parts will not catch and cause the ship to careen around into some unfavorable or destructive attitude. This is not the case with a landplane with its landing gear retracted, when the clearances becomes less for the emergency landing.

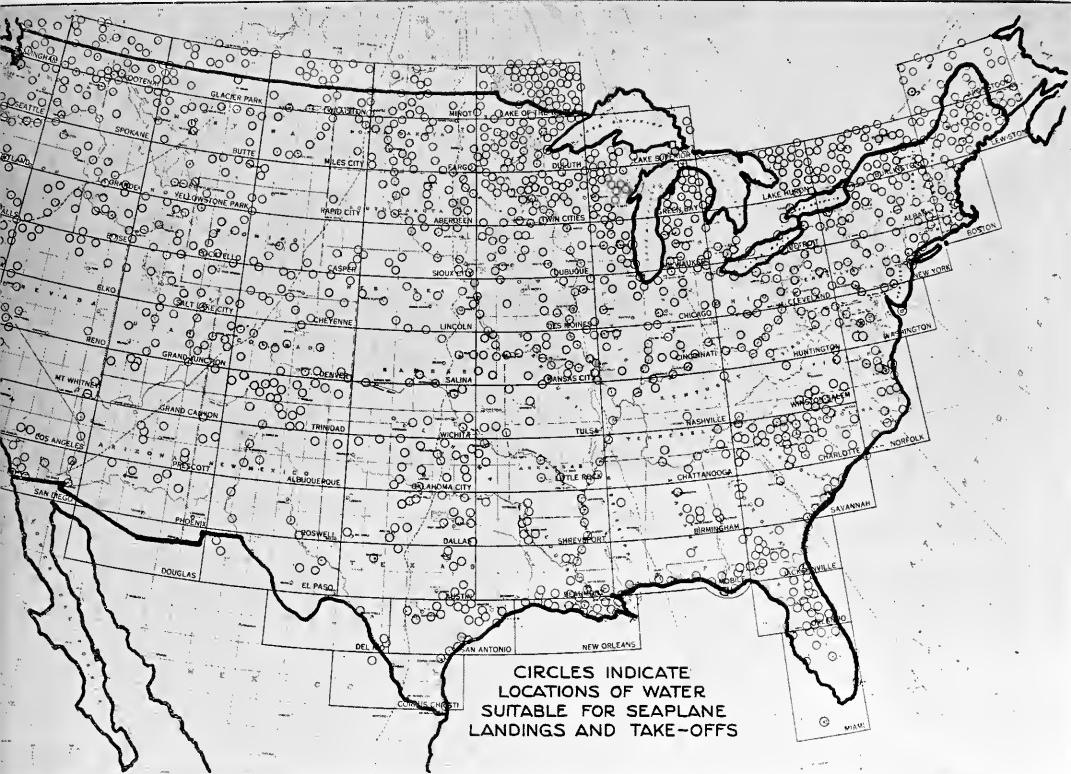
There have already been several instances of flying boats making forced landings on land and in no such case, to the author's

knowledge, has there been a serious injury. A *Consolidated* Commodore operated by Pan American Airways was forced to land in a clearing in Cuba. No one was injured. The story goes that one of the passengers riding in a Commodore at a later date accosted the pilot and related his part in the event. The pilot remarked that it was quite a coincidence for said he, "I was the pilot of that ship," "and," he said after a pause "This is the ship."

A Navy patrol boat was recently landed on a beach in San Diego with no one injured. And even more recently, an amphibian landed at the Glendale airport with wheels up, "without a scratch." The intentional daily landings and take-offs of the Cub seaplane on the grass airport at the Cleveland Air Races also bears witness to the fact that the procedure is not unduly hazardous.

The realization that flying boats overland is not hazardous cannot help but become more widespread when Uncle Sam's newest and fastest Dreadnaught of the Air, the *Consolidated* XPB2Y-1 is on short notice ordered to proceed across the United States from San Diego to Anacostia. The return flight, also made overland, was flown over an entirely different route showing that the Naval navigators were fully aware of the numerous landing places available. Another factor of considerable importance is that the landings at the termination of both flights were made at night without any elaborate preparation such as is necessary for the usual landplane landing.

Commercial operation of land transports has meant that a great deal of money, time and effort has been spent in their development. Consequently the development of landplanes has preceded that of flying boats by a considerable margin. Only recently have flying boats begun to have the clean strutless appearance that landplanes have shown for the past eight years. Flying boats have more or less copied the developments that were demonstrated on landplanes. Although this is still being done, the gap between the developments is rapidly closing. Whether or not flying boats will attain the practical speed of landplanes is still a moot question, however, it is becoming evident



that flying boats are likely to far outstrip landplanes in load carrying capacity which is equally as important as speed. The superior load carrying capacity of flying boats is due to the fact that large take-off areas which are necessary for highly loaded aircraft, are already available. We do not have to wait for the development of suitable airports before we can increase the load carrying efficiency of flying boats.

This situation has not just occurred. The opportunity to operate flying boats commercially without a great deal of airport preparation has existed all along. The point is that this opportunity still exists. There are many points which could be served by flying boats which can never afford to support an adequate flying field. Air transportation is still in its infancy and even though it has been growing by leaps and bounds, the next ten years will probably see undreamed-of expansion.

Nature has already provided the ground facilities for expansion of flying boat airways and whoever takes advantage of them is likely to profit thereby. Nature still prefers flying boats.

ASSOCIATED GLIDER CLUB

THE December meeting at the La Jolla Grammar School was well attended. Nearly 50 persons enjoyed Col. Hoffman's moving pictures of parachutes and "Woody" Brown's colored movies of gliding and surfing. Plans for the New Year's Meet at Torrey Pines were discussed and invitations have been sent to the Los Angeles clubs.

Jay Buxton's 2-place "Transport," Sandborn's 2-place "Grunau," Bowlus with his "Albatross," and Stevens with his "Ross-Stevens Special," which won laurels at Elmira last year, have promised to attend. Competitions for distance soaring will depend on the wind, but in any event there will be duration flights, spot landing contests and motorless aerobatics, and passenger flights will be featured thru the three days of the meet, December 31, January 1st and January 2nd.

The field is located on Torrey Pines Mesa, one mile north of Scripps Institute and is easily reached by auto or plane.

Jerry Litell,
Mach. Shop Inspection.

Live and Learn!

In view of the recent interest in just how old a pilot must become before he "loses his grip", the following note from a report on the effect of high altitude flying is interesting: "Tests have also indicated that older aviators, that is those over 45 years of age, have shown relatively few symptoms from the effects of altitude alone. Older subjects studied showed more stable cardio-vascular responses to oxygen deprivation or altitude than the younger ones and in general were less susceptible to collapse or fainting. In this connection, it is also desired to point out one airline has recently found thru tests that pilots of this age appear to be less susceptible to fatigue after prolonged flights."

"It's just ten years this Christmas since my wife went out to buy a loaf of bread, and she has never come back," said the old fellow sadly. "What do you think I ought to do?" With deep sympathy his boyhood buddy replied, "Guess ye'll jest have to go out and buy one yourself, Jim."

"GOOD morning Mr. Ryan and how are you?"

"Just fine, Larry, and what's more I'm celebrating an anniversary. It's just a year since I was assigned here at *Consolidated* as an inspector of Naval Aircraft."

"Is that the only reason for the big smile today?"

"No, but you'd be feeling swell too, Larry, if besides celebrating you had just been up in the big "X" job. That Flying Dreadnaught handles easier than any cloud pusher I ever flew in. I can't figure it all out. And, Boy, when they give her the 'ink' do you get a kick in the pants, Wow!"

"You mean you had a ride in the big Four-Engined job today?"

"Yes, sir, and how I hated to come down. That's what I call a real airplane."

"It's good to hear those words from a veteran flyer like yourself, Pete. I'll bet you have handled plenty in your flying days."



Naval Inspector Pete Ryan alongside a *Consolidated* N.Y. during his student instruction days at North Island.

LOGGING A MILLION MILES . . .

"It's a long story, but I guess if I had my chance to do over again I'd be right in there 'doing chores' for the good old United States Navy."

"When did you first join up, Pete?"

"It was in 1904. I was just sixteen and the Navy looked like a fine opportunity. I was living in Boston at the time. I was sent to school on shore to complete my high school studies and had to return to my ship every evening. At that time I was trying for an Annapolis appointment."

"Did you make it?"

"No, I got a wild idea about going into business and bought out after three years."

"You came out to the coast about that time. How was business?"

"Well, there just wasn't any. Not knowing what to do with my spare time I got lined up with a crowd of early day flyers and we formed the Los Angeles Flying Club. I did learn to fly, but the thought of those old contraptions just about give you the creeps."

"Some of those old crates were pretty terrible to look at but after all they did fly and we wouldn't have been able to advance to the present day designs unless the bugs were worked out of the old ships."

"Yes, I believe you are right. We did learn an awful lot on every flight we made. I must tell you it was really a thrill in those days. Our club was invited to perform here in San Diego Exposition in

1915. We trucked our equipment down from Los Angeles. Old 101 highway wasn't much to speak of in those days with its steep, winding grades and hairpin turns. We had to unload our trucks at least seven times in order to make some of the turns. We flew from the field at North Island and gave many exhibitions during our stay here."

"What were you flying, Pete?"

"We had old Curtiss Pushers."

"You must have had your eyes on Navy Aviation activities about that time."

"Yes I did."

"When did you enlist again?"

"In 1916. I knew the Navy was planning on more extensive flying operations and I had heard about the work at Pensacola. I joined up again and due to my flying activities I was assigned to the Machinists' School at Pensacola."

"That was about the time great naval aviators like Towers, Bellinger, Read and Richardson were taking flight instructions wasn't it?"

"Yes it was. We had some very novel experiences flying those old boats around. You would never know when something would let go."

"You seem to have come thru it all in good shape."

"Well maybe so, but I've had a few close ones. One time at Pensacola a pair of pliers got jammed into an elevator control sheave. It was impossible to pull the

By LARRY BOEING

controls back and we headed for the wettest part of the bay faster than any pelican ever lit out after a herring. That old wooden hull just went to pieces and the motors are probably still going. Nobody got hurt so we just called it a day and forgot about it."

"You mean that was your only upset?"

"Well, yes and no. I think the time I tried to eliminate the Hawaiian Police Department was a much worse crash. I ran a swell second in that affair."

"Say, Pete, what about your wartime service? Were you doing any flying?"

"Yes, I was. The Navy built a flight deck on the U.S.S. Huntington. We had six Curtiss R6 planes on board. They were float equip biplanes with low horsepower motors. We operated from the first catapult installation the Navy had. Boy, those take-offs were terrific. The little truck the planes rested on during their little ride over the side always went overboard and it was always necessary to lower a boat to salvage them."

"Where were you operating at the time?"

"Mostly doing convoy work between Halifax and French ports. On one trip we had aboard a load of diplomats and Col. House and his staff. The German subs had us spotted and we poured shot after shot at them. I doubt if we hit the subs,

but the concussion from our own gun fire damaged our planes so badly we had to take them off on our return to New York."

"That was too bad."

"Yes, but we were due for a change anyway. The short range, low horsepower planes were of little use in the rough, soupy North Atlantic. I was sent to Key West to organize a flying school and remained there until the Armistice was signed. After that I was sent to Rockaway, Long Island, where I had charge of the mechanics getting the NC planes ready for the trans-Atlantic hop. I stayed at Rockaway until they closed the station in 1920."

"That certainly must have been an interesting period."

"It was, but I was then transferred to Pensacola to attend the flight class. I graduated in 1921 and my first assignment was to Anacostia where I acted as second pilot on the Secretary of the Navy's plane."

"That sounds to me like a very pleasant sort of assignment."

"It was, but it didn't last very long. In 1922 I was detailed to organize a squadron for the China Station."

"Is that where you met the great Chinese tailor?"

"Yes sir, good old McGee in Chee Foo."

"I heard you received a commendation from the Commandant of the Fourth Naval District for your successful flight into Lockhaven, Pennsylvania, with Typhoid Serum during the disastrous floods in 1936."

"Oh, yes, I did but it didn't seem like much of an assignment until I started to look for a spot to land on. I finally found a spot about the size of a pocket handkerchief and set the Vought S.U. down. I became bogged immediately and had to remain with the ship three days until the ground became dry enough to take off and return to Philadelphia. It was all in the day's work."

"Nevertheless, Pete, it took careful maneuvering with that slow landing plane to do that job and you should be commended for your efforts because you no doubt saved many lives."

"Did you see any service on the big carriers?"

"Yes, I helped organize and put into commission both the Saratoga and the Ranger."

"They are just about the last word in Aircraft Carriers. It sure is a pleasant sight to see them operating."

"You probably flew a lot of Consolidated planes. How did they impress you?"

"Very good. In 1928 I was sent out here

to the Naval Air Station at North Island as a flying instructor. We used Consolidated NY jobs and many an hour I spent with students in those highly efficient training planes."

"How many hours have you logged?"

"Sixty-six hundred hours."

"Why, Pete, that's close to a million miles in the air."

"Yes, maybe it is about that many miles, but some of those hours were in test jobs and they were awful long hours, if you get what I mean."

"Where were you stationed at that time?"

"I was one of the Test Pilots at the Naval Aircraft Factory in Philadelphia. I remained there until my enlistment period ended."

"I'll bet that was interesting work and plenty tough."

"Yes, at times, but never as tough as Clark Gable can make it look in the movies."

"Well, Pete, I envy you. You sure have had a most colorful life so far in aviation. It's good to see you in the business you like so well and I hope we can talk over a lot more anniversaries together."

"You bet we will. So long, I'll be seeing you."

"So long, Pete, and happy landings."



HULLABALOO

By Hep

THE following ad appeared in one of our local newspapers:

Lost, strayed or stolen, 14-lb Tom Turkey. Finder please return to Johnny Hopman, 3649 Crestwood Place. Reward, one drumstick.

George Wire claims he looks just like Clark Gable, since he grew that moustache. We'll agree with him in one respect. His ears are big enough.

What Hull employee, who recently tangled with an electric saw, was seen chasing Leo Carrillo all over the Foreign Club, trying to get his autograph.

The boys in the Hull Department extend their sympathy to Chas. Mayers in view of his recent sorrow.

Al Atkinson received a phone call the other morning, from his wife, warning him not to drink the coffee from his thermos bottle as she had discovered that their young daughter had put a pair of his socks in the percolator that morning. He felt fine until he realized he had drunk the same coffee that morning for breakfast. He has never been the same since.

Congratulations on the arrival of a seven and one-half pound boy in the S. B.

Jensen family, Dec. 14, 1938. The name: Richard Leslie.

Some of the boys in the Hull Department had been planning a boar hunting trip to the Santa Cruz Islands. The plan was to have a feast of boar meat for all the boys in the Hull Department who would raise a moustache. They were warned, however, to be careful not to wound a boar, but kill him outright with the first shot or it would be just too bad as one squeal will bring the entire pack charging. Russ Kern decided that he could easily outrun them. Glenn Hotchkiss was sure he could shoot his way out. We asked George Wire what he would do. He seemed very sure of himself. He said he would talk his way out as he usually did when he got into trouble. However, I've been told the boys have all changed their minds. They decided that just plain pork was plenty good enough.

Many of the boys have nicknames in the Hull Department. After much consideration we have decided that the prize, a gold-plated, crocheted bathtub, would be awarded to Johnny Hopman. In case you haven't heard his nickname it is "Dumpling." Yoo! Hoo! Dumpling.

Recent investigation shows us that we have a "dark horse" coming from behind in the "moustache contest." Gordon Shoop is forging ahead rapidly with his combination moustache and goatee.

CUT MEAL COSTS Write for BIG FREE
RECIPE BOOK. Contains 47 ways to serve *Breast-O'-Chicken* tuna in delicious, hot, big-family meals.

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SEND TO WESTGATE SEA PRODUCTS CO.
San Diego, California

This fancy solid pack tuna makes a nourishing, family-size meal. Be sure you get *Breast-O'-Chicken* brand tuna fish. Look for the Good Housekeeping Seal on every tin.

Keep SEVERAL TINS ON HAND



HOT SPARKS FROM WELDING

We wonder what Otto (Flying Dutchman) Roechel thought when the gas tank went boom (a terrific boom at that) . . . Back in the front lines again Otto?

The case of missing hacksaw frame has finally been solved by those two daring Sherlocks, Kurt Kruger and Bill Thomas. Any sleuthing you can throw their way will be taken right in stride.

Ray Craft and his two-quart thermos bottle have become an institution. We only hope the last drop is good too! Eh, Ray?

Having settled the "Ham and Egg" question, Stan Piontek and Frank Kastelic are now engrossed in the noontime discussion of Technocracy. They have also involved Geo. Draper and Frank Sechrist, all of whom have become ardent arguers, pro and con.

No. 3420.



FINISH NEWS

By Max Goldman

James Vaugh has returned after being off for two weeks on account of the removal of his tonsils. He is feeling spry and happy now. Congratulations on your speedy recovery.

Orville Hubbard was off a week with an attack of Flu and is now back to work hale and hearty.

Tom Conlin is also back after being sick for a week. Congratulations to all of you on your speedy recoveries.

The men of the paint shop are looking forward to see when the new canopy spray booth will be installed and how it will work without forcing the air up from the floor to the fans on the ceiling.

Anyone interested in playing football see C. W. Dale in the Covering Department. Average weight should be 155 pounds. This team is being arranged to play in the city league next year.

DRIFTING THRU DRAFTING

"There was a young man named McVicker
Who cared neither for song nor for liquor
But he tripped to the altar
And acquired a halter
And thus he went wrong all the quicker."

YES, folks, it's really come to pass as "scooped" in our October issue. On the next to the last day of the year Pee Wee McVicker (whose initials G—D— stand for Graham Dudley instead of the usual thing) took unto him a bride in the person of Mary Emily Smith.

Our friend, Yogi the Mystic, told us that we could add to the appeal of this column if we spiced it up with a bit of poetry; hence the New Year innovation at the head of the column. All complaints should be filed with Hermann Sonntag's layouts.

While we are still talking about the holiday season, we would like to mention that Ben Livers has invited several of his Engineering Department friends over to his house to help him play with the electric train he bought for his son Jerry for Christmas. Last year he bought an electric train for the boy, but there was so much controversy over it that he provided an additional train this Xmas so that they could each have one. Any of you engineers who are mechanically minded can probably arrange a home appointment with Ben.

On several occasions folks have told Joe Szakacs that he was thick-skulled but it never penetrated to his satisfaction until the other day. At noon the lid of his car trunk fell on him and then as he was gazing at the Model "31" shortly afterward a power drill fell off a scaffold and plunked him in the same spot but never made a blemish. We are told one can still buy tin hats if you ever feel yourself going soft, Joe.

IT'S FUN TO BE THIRSTY by Gazosa

One of the Russian stragglers arrived the other day in the person of Felix Kallis. He arrived later than some of the others because of a visit to his mother in Estonia. Of course, we promised last month that we would make no more mention of these returning "Russians" but we were a bit afraid you might not all fill out the blanks provided, due to the Christmas rush.

Most of the fellows thought the finger-printing was quite a lengthy ordeal and several of them were discussing it the other day in front of Karl Achterkirchen. "Shucks," giggled Karl, "that was a lot easier than writing my name."

Since pictures too are now being clipped for the "Structures Memorandum" one is a bit fearful of picking up an engineering periodical these days lest it fall apart in his hands. Boys with detective story magazines do not leave their books lying around any more, just in order to preclude the solutions of the mysteries from finding their way into Ken's scrapbook.

Anyone with a yen for seeing a bunch of old men gamboiling about in an effort to recapture the glories of youth may witness such a spectacle any Sunday morning at Presidio Park when Fannie's Fainting Fumblers engage in the game of touch football with the youngsters from Old Town. We hear that Pop Warner and Amos Alonzo Stagg have written Joe for tryouts.

The reason Joe Phillips is walking in such a jaunty manner these days and humming college songs is that the show "Brother Rat" just hit town. You see, the picture was filmed at V.M.I., Joe's old alma mater, and he got another touch of the old college spirit.

Constant dealing with beaching gear, floats, and other things nautical has rendered Wendell "Nomad" Eldred quite helpless on land. Recently he started out on an innocent Sunday drive to the desert, but he got on the wrong road, ran out of gas, and finally straggled in with a pair of dark circles on Monday noon. Wendell said he knew where he was all the time because he was right in the car, but he explained that the new car was not broken in for homing instinct. And another thing; the day is past, Wendell, when the dealer furnishes a full tank of gas with a car purchase.

Don't say we didn't warn you. We hear that the stork, after being grounded for several months due to unsettled conditions, is again hovering over several of our friends in the Engineering Department.

No. 257.

"A Scandal," is something that has to be bad to be good.



I Resolve . . . Yes?

1. Lloyd Bender: "To shoot no wooden decoys during '39."
2. Grace Komis: "To stay upon the saddle of your horse I ride."
3. Gene Tibbs: "To practice diligently until I can read 50 instruments simultaneously and thus satisfy all the engineering boys."
4. Jack Kline: "To find bigger and better Kiddie Kars to crank."
5. Eddie Long: "To stop fishin' fer bait and catch some real ones."
6. Bert Bowling: "To tell the truth, the whole truth, in all future biographies."
7. George Newman: "To continue, as in the past, to fly one of every future model Consolidated mokes."
8. Sam Seligman: "To cut out shorts and shortages in '39."
9. Joe Braun: "Move to my new home by Feb. 1."
10. Harry Van Meeden: "Never to shoot no mo' wild burros as they make me feel like a jackson."
11. Jack B. Pott: "To grow a corporation like Dad's."
12. Herb Ezard: "Not to let the engineers of model No. 31 get in my hair."
13. Doc Carpenter: "To invite all salesmen who phone me while I'm placing fertilizer to come up for tea!"
14. Hank Fink: "Drive with caution a brand new car."
15. Nick Tuvesky: "To comb my hair every day during '39."
16. J. R. McDonald: "Never to take another fingerprint . . . but I'll bandage all with dexterity."
17. Peter Smith: "To get on the friendly side of the City's traffic officers . . . dognag 'em!"
18. John Wosky: "To make no resolutions . . . then I can't break 'em!"
19. Don Frye: "To return all cigarettes 'borrowed' by me in 1938."
20. Gilbert Lance: "To extend my vast goat ranch stock to over two head."
21. Frank Lester: "To imbibe freely (of H₂O) through '39."
22. Cap Koehler: "To best 'Two Quid Wilson' of Toonerville fame."
23. C. A. Van Dusen: "That no more corn silks shall burn in my pipe."
24. Irma Robbins: "To learn to do the 'Jitterbug' for the '39 Christmas party."
25. Leo Bourdon: "To throw overboard no more anchors . . . without a line attached."
26. Honk Golem: "Never to suffer the discomforts of duck hunting unless the ducks fly past my living room window."
27. Les Crawford: "To . . . why . . . er! of course."
28. Tom Butterfield: "To stop telling of how I leaped the Taylor Cub and not to touch a welder near our gas tanks!"
29. Walter Koch: "To out-do Warner Bros. in mock-ups!"
30. Glenn Hotchkiss: "That I'll get a deer this year if I have to go to a zoo!"
31. Tom Bunch: "Never again to walk into a door knob for a black eye unless I have a witness."
32. Jim Kelley: "That this year I won't break into the dime bank until I'm positive there aren't any candid camera fiends lurking in the offing."
33. Al Ambrose: "I tank I own no more boots."
34. Bud Waterbury: "To trade my jollopy in on a new Mercedes-Dusenberg-M-Cormack-Decring Four."
35. Fred Harford: "To put a real finish on amateur geology."
36. Aubrey Shonberg: "To dress my car top with waterproof dressing every time I polish my car."
37. Chris Englehardt: "I resolve, for one whole year, never to tell of the big ones that got away."

PRODUCTION MINUTES

BY BRADSHAW

HERE we go again folks, putting two and two together to get a scandal. With this issue we find the passing of the football season and our Christmas turkey. Fact is, from the shape of the piece I got, if that turkey had passed any faster I would have had eggs for dinner.

We notice the fellows really get mellow and big-hearted around Christmas time. Paul Hoch told his wife about those pretty new Buick autos on display and then bought her a handkerchief the same color as the fenders. Ray Hartmayer purchased his wife a necklace and when asked the size, cupped his hands and replied "Her neck just fits in here." Perry Ogden bought for his spouse a new pipe, and the Yuletide tree bore for Mrs. Gimber a necktie and pair of suspenders. When interviewed, these generous givers remarked "Oh shux, twern't nuthin', Christmas only comes once a year."

Chief Mulroy, that man with the blood hound instinct who has found everything in an aircraft factory except "that little yellow basket," when asked about that Christmas story in the last issue concerning his leaving a bar-room replied "Well at least it was said I WALKED out but whether the other fellows came out horizontal or perpendicular, was left to the reader's imagination."

Joe Maloney, after borrowing all the overcoats, mufflers, and gloves possible and chasing the moths from his red flannels, departed to spend his holidays in Buffalo. Good luck Joe, if Admiral Byrd can take it, so can you.

Bennie Leonard, foreman of the splash and splatter crew, has solved the problem of draft prevention in the paint shop when a door is left open. He just inserts "Tiny" Slattery, 260 pounds of his personnel, in the opening.

Attended the Notre Dame-U. S. C. game in Los Angeles along with such football notables as Kiegles, Wilkenson, Flowers, Robertson and Stewart. We were surprised to read that U.S.C. won. So was

Lou Miller and it is reported he traded in his radio for a washing machine to earn some extra "potatoes" to pay off. Our seats were somewhere in the vicinity of Pasadena and Kiegles believed he was watching a "flea circus" for a full quarter. A few trick plays and "huddles" were pulled off in the stands with more finesse than the teams which made Stewart remark, "I se regusted!" We encountered the world champion "sourpuss" and Jim put him on exhibition but failed to earn any money. Neither did he cash in as a train "butch" as he was peddling only "ham" sandwiches. Flowers, the shrinking kind, had to be held on several occasions and made to take nourishment. The trip was extra expensive due to new dresses for the wives and Robertson says that a "dog house" is no place to sleep even in California.

Just learned that Jim Patten, greater portion of the Machine Shop, hails from West Virginia, the old home state. Jim informs me he would like to return, as a jug of that "Mist o' the Mountain" would be mighty swell. "But," says Jim, "I can cut my way through the brush and ride the ox-cart O.K., but getting over that last leg of the journey by swinging over on the grapevine is too dangerous with the added weight I'm carrying." You forgot the "Squirrel gun" Jim, and remember you look like a "furriner" now.

And speaking along the line of birth-places, the ravings of Larry Boeing, golden voiced echo from the "Cage," prompted an investigation. We learn that this part of Ohio was offered back to the Indians and refused. The curfew blows at nine and wakes the residents. It is rumored that F.D.R. wants some European country to ask for a land retaliation from the World War so that he can stick them with it. Maybe that was why West Virginia had the Ohio river channelled along its present course.

Promoter Benter and Coach Bell, those

masterminds of the hardwood sport, have the Production Basketball team gasping, groaning and stumbling through their paces at the Park Gym. On the roster are such well conditioned (who threw that) stalwarts as Higdon, Rasmussen, Liddle, Matusek, Miller, Luppke, Deitzer, and Yours Truly, providing I can play a stationary forward with plenty times out for a short beer. We will do or die for dear old Production. Block low; don't slug when the "ref" is looking and don't stumble over Luppke's feet, fellows.

The Purchasing "PU" team sure look gorgeous in their new "scanties." A credit to any ballet chorus. But we learn Eddie Jones put his foot down on their wearing berets and girdles. "Leave that to certain sportsmen who live out La Jolla way," says Jones.

Zollezzi, plant trucker, was very perturbed at unloading a parcel at the stockroom and discovering it was Howard Bell, in disguise and with a delivery tag attached. "I was in a hurry for parts," explains H. G., "and you can't hold up this 31X job because a trucker is too lazy to push, according to dispatcher Muck."

Lou Miller, absent-minded Nebraska cornfield philosopher, has Craig Clark and Red Williams worried over forgetting his debts. "If the guy used a half-length mirror he would probably show up to work minus his pants," says Craig.

Ted Anderson, Bench Dispatcher, contends he and George Young have the best place in the plant to sleep. "50,000 termites can't be wrong," says Ted. George might be cautioned that with the load on his chair it won't require many "termite banquets" for a complete collapse.

"Them durn Yankees can never whup the South suh," argues Bill Fleet, concerning the Duke-U.S.C. Rose Bowl game. So folks, if you are in the stands and hear the "Rebel yell" remember the Civil War is over and it may be William getting a bit excited over a southern advance.

Dan Miller finally sang "I surrender dear." Yep, spliced is the word but if the ceremony had been any slower, it would have been "a hangin'" instead of wedding, as Dan was slowly strangling himself with his necktie. Eddie Kellogg, oft a best man but never a groom supported the hero. The mother-in-law's car, used for the transportation, was decorated with some rare and fragrant Limburger Cheese. Dan will probably be able to laugh more heartily and appreciate this joke in the years to come.

Whether profitable to beachcomb for driftwood to build a boat, is debatable, according to Charlie "Yo hoo" Hiebert.



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NEWS FROM THE BENCH . . .

"Balls of fire," laments Chuck, "while I'm away, Ernie Johnson retrieves my empty bottles and trades 'em in for full ones." "The one that really hurt," continues Charlie, "was that Seltzer bottle worth two-bits." They say the boat seat resembles the Hiebert kitchen table and that "chocolate Chenille beret" is to be traded for a Commodore's Cap. Jim Eisman wishes you "bon voyage" skipper and a full cargo of "white sail fish."

Tommy Butterfield, the flying inspector, reports that from now on he is taking a tip from Corrigan and using chewing gum to plug leaks in his gas tank. Tommy worried so much over the explosion of his tank that he drove his dog nuts. "Cad Plate Cap" begs you to fly a little farther from his chimney, Tom, until after Christmas, as he still believes in Santa.

We have heard of giving them the "hot foot" but until Kurt Kruger heated Leo Bourden up with his torch the "hot arm" was unknown in the plant.

Just as a warning fellows, if the Chamber of Commerce finds out about those overcoats, long underwear, and ear muffs, you may lose your citizenship rights.

From the navy office comes the report that it will take more than that electric clock to time Jim Eisman's movements if a certain departed inspector learns he has taken it home.

Arnold Springer is worried over George Wire passing thru the tank department so often, and suspects him of trying to steal that float job for Hull. Let's nail 'er down Ernie.

Roy Coykendall refused to be rattled on the Alleyway over the rumor he sold out to Hull No. 1 because some one "threw him a fish." The reason for his coolness was discovered when he picked the wads of cotton batting from his ears after the game.

"That's purty good, Johnnie, but that ain't the way I heered it." (The way I heered it wuz.) "They decided to place the drop hammers in the Hull Department in order to keep Walt Hassler, Glenn Hotchkiss and George Nelmann all awake at the same time.



Stop, my friend, as you pass by.
As you are now, so once was I.
As I am now, you soon shall be.
Prepare yourself to follow me!



To follow you I'm not content,
Until I know which way you went!



A successful man is oftener known by the fights he has avoided, than the fights he has won.



DAVE WILKINSON, the metal bench cowboy, states that his mother-in-law received a black eye in a fall from a pony. Until now we always considered Dave a pretty truthful chap. No. 2940.

Dave also states that his Indian pony is so full of Indian blood that it won't answer to anything but its Indian name . . . Sleeping Turtle! No. 2940.

Fred Buchbaum, the metal bench mathematician, has announced that he has solved the problem of dividing an 8-gallon keg of whiskey into two equal parts in six moves using only a five-gallon and a three-gallon measure. That's nothing. Maybe Fred hasn't heard of a guy named Murphy who can divide a quart of whiskey into two equal parts in one move without using any measures at all. No. 2940.

Otto Voss, the metal bench realist who has been forming Plexi-glass the last few days, came to work with a couple of flyswatters. He said something about George Young and Frank Morse complaining about specks on the glass. No. 2940.

Warren Seely is the envy of the boys in the early part of the morning. He displays his physical powers by doing a few acrobatic stunts and fancy steps before the whistle blows. Thus does he complete his morning calisthenics. Ask him how he kept fit while his wife was away.

No. 2925.

Congratulations are in order for Paul Schrenck of the Bench Dept. Or maybe an expression of sympathy might be more appropriate since Paul's wife won the battle and their new home is nearing completion in Mission Hills. No. 2925.

Ordinarily Pop Castle is a pretty good-natured guy, but of late seems to be out of patience with everything in general. We know he has graduated from fifty dollar ideas to figures in three zeros, so we presume this too rapid expansion is giving him a headache and causing him to lie awake nights much to the consternation of Art Fulton who sympathetically has helped him by donating his free time and proven ingenuity to cinch his perpetual motion complex.

No. 2925.

Steve Matusek does not appreciate somebody for "Cleaning" the inside of his car. It happened that in the morning Steve found a few things missing, in fact about all he had, except the radio. But we don't blame the mysterious gentleman for not taking it for it happened to be welded on. It looks like it was a tough yegg because he very cleverly unlocked the car, and after appropriating the articles, very thoughtfully locked it again. A new lock is recommended.

Bill Milton purchased a new oil-burning heater, but he didn't have a flue in his house so the fire marshal would not allow him to run the stove pipe thru the window, so Bill then applied to the Mayor, City Engineer, and so on down the line to the street sweeper and was finally given permission to plug up the fireplace and connect the vent thru the chimney. There were offered a few suggestions to remodel his home so he could have a chimney; but Bill says he doesn't care if Santa Claus will not be able to come down a five-inch pipe, for at least he can keep warm now.

No. 2962.

Looks like John Kara was holding out on us and keeping us in the dark about his model building abilities, until the other day we saw his picture in the paper and the Christman display now at the Czechoslovak House of Pacific Relations in Balboa Park. John builds all kinds of models including ships, airplanes, locomotives, and many others. In Baltimore he built several large Christmas displays. The materials he uses are cardboard, paper, Balsa wood and paste or glue. At present John is building a model of the *Consolidated Aircraft Corp.* buildings, which will be finished in about six weeks.



When yo' full o' worry
'bout yo' wok' and sich,
When yo' kind o' bothered
'case yo' can't get rich,
Des don' pet yo' worries
 lay 'em on de she'
Tek a little sunshine,
 Bruthah, wid yo'sef . . .
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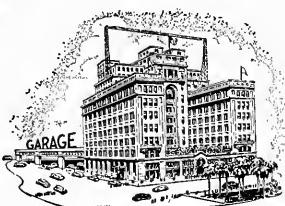
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Bowling . . .

THE 11th round of Consair's Bowling League was rolled at the Sunshine Alleys December 16th, and the old dope bucket was upset plenty much to the satisfaction of the Wing team which emerged at the top of the ladder of the league standing with 30 points won and 14 lost.

The crack Production department aggregation is pacing the Wings with 28 points won and third place is held by Hull No. 1 which has won 24 points to date.

The Final Assembly is in the doghouse with only 15 points while the Sheet Metal and Hull No. 2 quintets are fighting to keep out of the cellar with eighteen points on the credit side of the ledger.

Last week when Chet Puza of Chet & Ione's drink emporium announced that he would give a drink to any kegler of Consolidated making 200 or over he let himself in for a rather expensive party. Several keglers who had heretofore kept their light hidden under a bushel at the bowling alleys snapped out of their disguise and showed the spectators some real bowling. Chief among these were Jack Edwards and Leo Danner who set up series well above the 600 mark.

Edwards started the ball rolling with a neat 227 and registered a 209 in the second. In the third he had a turkey and a double but had to be satisfied with a 197 which netted him a total of 633. This mark is the highest series for Consair leaguers to date.

Danner, a teammate of Edwards and who bowls leadoff for the Wings was not one whit daunted by the stellar performance of Edwards. He posted a 225 in the first game, came through with a 200 game in the second of the series and cantered home with 205 for a 630 total only three pins behind his cohort.

Michael Brooks, star pilot of the Hull No. 1 team has gained the title of "The Great Experimenter." He has changed the lineup of his team so that all five men have served as anchor and leadoff. In spite of the constant shifting of personnel the Hull team is gradually losing ground at least they have lost eight straight points. But keep an eye on Mike and do not bet any kale his team will not be in the do-re-me.

Arnold Springer shares first honors for having the highest average of the Consair bowlers. Arnie goes to bat with 173 appended to his name. His rival is the aforementioned Michael Brooks who likewise is

shooting to a 173 average. Other leaders are Steve Smith 171, John Edwards 170, J. Craig 168.

High game for a single game up to date is credited to the Wing team who polled a 950 some time ago. They also have the distinction of setting up high team series for the league with a total of 2698. These figures are all actual and do not include handicap. The Wing team is composed of Danner, Armstrong, Smith, DeGinlo and Edwards.

League Standing

Wing	30-14
Production	28-16
Hull No. 1	24-20
Tube Benders	24-20
Machine Shop	22-22
Maintenance	21-23
Sheet Metal	18-26
Hull No. 2	18-26
Final Assembly	15-29



The Hull Truth?

THE Hull Department thanks the thousands of loyal bowling rooters who turned out en masse to see the powerful Hull No. One team down the Production Jitterbugs. The highly popular (?) Hull team set the Production team on their respective ears, which by the way were stuffed with cotton to drown out the noise of the flying pins which were mowed down by the powerful Hull team. Unable to stop the slaughter the Production boys took to blowing whistles and firing double-barreled shot guns trying to rattle the Hull team, but all their efforts were wasted. After the smoke had cleared away enough to allow the jitterbugs to see how badly they were beaten, one of the excuses heard was that the Production boys were so mystified by the scraggly fuzz on Geo. (Clark Gable) Wire's upper lip, that they couldn't concentrate on their bowling!

A.L.

Slim Franklin has what he calls a fishing boat. He was telling the story about how the boat ran onto a sewer pipe. It seems that he was fixing his motor and not looking where he was going when he ran into something. He looked up and found himself on the sewer pipe. The Tubing Dept. has been thinking for a long time that that's where it belonged!

No. 2813.

First of the year and Vandenberg's car is still running!

No. 2813.



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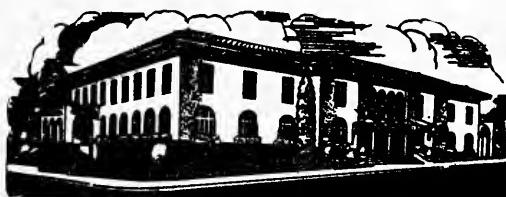
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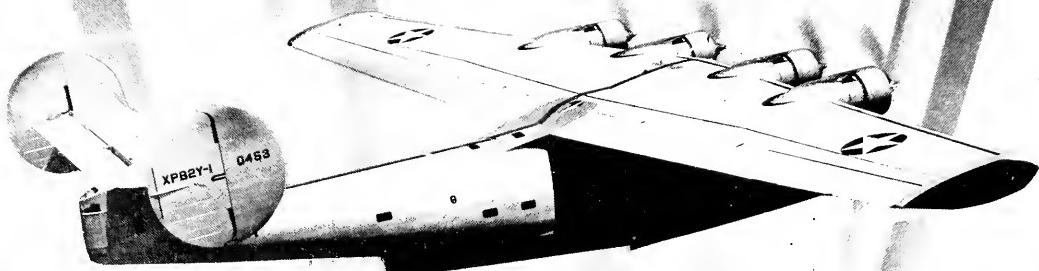
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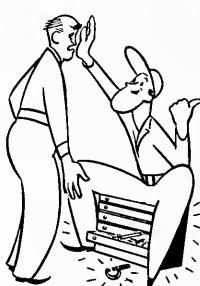
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CONSOLIDATOR

Volume 4

February, 1939

Number 2

PHEOBY V. PREMIERS!

IN the center spread of the October *Consolidator* there appeared a story all about the PBY going Hollywood . . . all about the Warner Bros.' motion picture which was then in the process of making and which was to be called, quite appropriately, "Wings of the Navy." In that picture there were to be scenes familiar to many of us . . . interior shots taken within the insides of the PBY planes . . . (Warner Bros. actually used beautifully deceptive mock-ups for the actual picturization) and there were likewise to be shots of the PBYs in massed formations which many of us were not privileged to witness.

Therein, too, was told of the part our genial final assembly second in command, Dick Maving, played in the filming of the mock-up shots by acting as a special technical advisor, loaned to Warner Bros. for the filming.

Since that date with the regularity of a clock we have queried to find when the picture was going to be released, when it would appear in San Diego, and at what theater. As many times as was asked, the response was that it had not yet been released. Now, however, it has been released, and will appear in San Diego on its World Premier! For the very first time we can take our family and show them the insides of the planes on which we work . . . the interiors of the PBYs.

Of course, besides the PBYs in the picture, there are the outstanding favorite movie stars who play the leading roles: George Brent, Olivia DeHaviland, John Payne, Victor Jory, Frank McHugh and others . . . to make the picture undoubtedly one of the finest air pictures of the year. The picture, "Wings of the Navy," will start its engagement at the New Spreckels Theater on February 3rd, and there is no need to urge you to see it . . . there will be difficulty in preventing any *Consolidator* employee from missing this chance to show our friends what the insides of the PBYs look like in actual motion pictures!

VOCATIONAL SCHOOL OPENS

MANY *Consolidators* are taking advantage of the educational opportunities available at the San Diego Vocational School that is a division of the San Diego City School System.

Operating five days and nights a week, with courses set up to cover most phases of Aircraft Design, construction and maintenance, this school offers to the persons seeking information and training, highly interesting and beneficial subjects. Classrooms and equipment are of the highest type and the faculty is made up of carefully chosen people who have had many years of experience working at the job they are teaching and all carry California State Teachers Certificates. One requirement for the teachers is that they have at least seven years actual experience in the subject they are teaching.

Among this group are Charles Hibert teaching Metallurgy and the Theory and Practice of Heat Treatment; Van Doren instructing in Tool Design; Raymond Craft, Welding; Alfred Johnson, Sheet Metal; and Larry Boeing, Elementary and Advanced Blueprint Reading. Classes in Aircraft Theory and Shop Mathematics will also be available.

The only fee required is the registration fee and a slight charge for material used in the welding classes. The school is located at the corner of State and Market Streets. Walter L. Thatcher, co-ordinator, invites all aircraft employees to visit the school and discuss the courses and their value to the individual.

A class to which attention is called, is that of Theory and Nomenclature of Aircraft Design, Construction and Maintenance, which affords a particularly good background of the terms and phraseology of aircraft. It is particularly useful to those in the clerical, stenographic and secretarial positions in aircraft. A. D. Adkinson is the instructor and the class meets on Tuesdays from 7:00 to 9:30 p.m. in room 202.

Experts are proverbially suspicious of the unusual or the extraordinary.

NAVAL AIR ARMADA

ANOTHER chapter in the history of the United States Naval Aviation was written when, on January 11th, an aerial armada of 48 *Consolidated* PBY flying boats arrived at Coco Solo in the Canal Zone, completing the flight of 3,087 miles without mishap.

Commanded by Capt. Marc A. Mitscher on the spectacular flight, were the squadrons VP-7, VP-9, VP-11 and VP-12 which comprised the group of 48 planes carrying some 336 officers, flying cadets and enlisted men on the long hop, the largest massed hop in U. S. Aviation history. All save three of the planes made the entire 3,087 miles in one hop. These three alighted and refueled simply as a "precautionary measure" and proceeded to their destination. Thus has been added to, in a very appreciable extent, the remarkable record of consistent outstanding performance of the PBY flying boats in the hands of their Naval pilots, over long distances, in massed flights . . . a consistency that is hard to grasp.

In flights of over 2,500 miles each, and with over half of them greater than 3,000 miles, the PBYs have completed without mechanical incident, a distance equal to approximately 17 times around the globe at its greatest diameter!

John Kara, of the Metal Bench Department, whose model work at the House of Pacific Relations in Balboa Park attracted considerable attention some time ago, recently completed his model of the *Consolidated Aircraft* plant and yard. On display in the main lobby, this latest creation of Kara's is an excellent example of fine workmanship and painstaking attention to detail and represents the expenditure of much leisure time in its fabrication.

WHASSIS?

It is stated as fact that Bob Biddle's gang of "wood butchers" are going to steal the stuff of the painting department in the paint department itself, by spraypainting the new paint booths!

Personal Income Taxes For 1938

Who Must File Returns:

Every married person whose annual income is in excess of \$2500 and every single person whose annual income is in excess of \$1000 must file income tax returns with the Federal Government before March 15, 1939, and with the State of California before April 15, 1939. Federal income tax returns must be filed in duplicate.

Income:

Income subject to tax includes salaries, wages, interest, dividends, rents, and profits from the sale of securities and other property. The income of minor children is considered to be the income of the parent for tax purposes. Gifts or inheritances, health and accident insurance payments, and amounts received in settlement of claims for injuries and damages are exempt from income tax and should not be reported on the returns filed.

Deductions:

Allowable deductions include interest paid, uncollectible debts, losses on investments, taxes on real and personal property, losses resulting from fire and theft, California unemployment insurance tax, and contributions to religious, charitable, fraternal, and veterans' organizations.

California income tax which was actually paid during 1938 is deductible for Federal income tax purposes, but not for State income tax purposes.

Sales tax, gasoline tax, alimony, and Federal old age benefits tax are not allowable deductions.

Personal Exemptions and Credits:

Personal exemptions and credits for dependents are \$1000 for a single person, \$2500 for a married person living with his wife, \$2500 for the head of a family, and \$400 for each dependent other than husband or wife. A head of a family is a person who actually supports one or more relatives in one household. A dependent must be under 18 years of age or be incapable of self-support. Personal exemptions and credits for dependents must be prorated on the basis of the marital and

parental status which existed during the year.

In addition to the items enumerated above, the Federal Government allows each taxpayer an earned income credit of 10% of his net income.

Tax Payments:

Federal and state income taxes are payable in full when the returns are filed, or in installments of 25% each in the case of the Federal tax and 33 1/3% each in the case of the State tax.

Filing Returns:

A Deputy Collector of Internal Revenue will be assigned to this plant during the period from February 20 to March 1, 1939, to assist the employees with their Federal income tax returns for the year 1938.

The days assigned to each department will be announced later.

Please fill in as much of your Federal income tax return as you can before submitting it to the deputy collector for review and acknowledgment.

During the week commencing February 13, 1939, each employee will be furnished with a statement of his earnings for the year 1938.

W. M. Shanahan

BENCH NEWS

IF prizes were given out for guys with the best good-natured grins, I believe Jim Duncan of the Metal Bench would get first prize. Is your face red now Jim?

No. 2938.

Scoutmaster Wm. Milton who has a troop of Boy Scouts at Pacific Beach, went on a hike about a month ago. They hiked to Dead Man's Gulch on Mt. Soledad. Upon arrival at their destination the honorable scoutmaster made a check-up on the scouts and he could only account for three. The other seven had covered the whole distance and were home eating supper. The three who remained with Bill were stretcher bearers, and they had to be ready to give their foot-sore scoutmaster a lift. They were also trying to qualify for the First Aid Merit Badge!

Will somebody in the Metal Bench Dept. ask Frank Morris, the Inspector, how many gallons of oil he uses in his car to go from San Diego to Los Angeles. Frank claims he has a diesel engine in his car . . . or something! No. 2938.

Bill Milton has become a prominent citizen of San Diego, belonging to such organizations as the Boy Scouts of America, Poultry Dealers Association, and the Chamber of Commerce of Pacific Beach. When told one morning about the frost,

Associated Glider Clubs

THE Glider Meet at Torrey Pines Glider Port was held as per schedule and in spite of the unfavorable conditions and the absence of several entries, it is felt that the purpose has been accomplished. We have shown the public and our visiting pilots that we have a good field of our own, and we have had it dedicated to the Youth of California. The dedication was led by Wm. Van Dusen of the N.A.A. A California flag was dropped over the field from a sailplane as were 300 letters specially stamped and flown by glider to commemorate the event.

The visiting ships drew considerable attention, especially the Bolus "Baby Albatross," with its beautiful monospar wing, nacelled body and its tail mounted on a four-inch dural tube. But it was the "Robin" from San Diego, built by John Robinson with the assistance of the *Consolidated* mechanics, that stole the show. Of extremely rugged construction, it has a very high gliding ratio coupled with excellent maneuverability. It ended the event with three turns of a spin, a dive and a loop, all within 600 ft. This, and the extremely rough air that buffeted the soarers around on the last day of the meet, convinced the more than 1,000 spectators, that the modern sailplane is built to "take it."

Jerry Litell, No. 7029.

Bill brightly replied, "That isn't frost . . . it's only moisture!"

Bench Christmas Party . . . It was all started by someone hanging a small branch of the *Consolidated* Christmas Tree, that was being painted at the time. Next day, a couple of the boys brought some ornaments and in a short time we had our "tree" all decorated. Then somebody suggested that everyone of the boys bring in a present of not over a dime. When Friday before Christmas came around we had a box full of presents. At four o'clock the gifts were passed out. As each received his present and opened it, there was plenty of kidding and laughs. Among the boys who received the funniest gifts were: Geo. Kener with a pair of diapers. Otto Dudzinski with a 24-inch cigar (Otto says that he is still smoking it!) Charlie Bell with a bathroom set, Otto Voss with his two bald-headed baby dolls, (Otto says one bald head in the family is enough). Jimmy Wilkenson with his expensive coping saw (10c). Gus Johnson with a pair of socks and Teddy Edwards with a can of sardines. Other gifts included cigarettes, snuff, candy, ash-trays, toys and others too numerous to mention. Plenty of fun and laughs were had by all. No. 2906.

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J. E. DRYER, PRES.

LOWDOWN ON THE LADIES . . .

By Catherine Alice Phipps

Hello girls!

Well, the infant 1939 has passed the first month of life and gives every indication of being a lusty, purposeful youngster. He received such a hearty reception into the world on New Year's Eve that there was doubt at times as to whether he—or the celebrators—could survive!

New Year's Eve has come and "went" And ye, who upon pleasure bent, Rang out the Old and in the New, Are glad the hectic time is through.

New Year's comes but once a year— But once is once too oft, I fear!

This is the time of year when, as we look back upon the busy holidays, we wonder why we bothered! However, we can now relax with the consoling thought that we won't have to wrap another gift, write another greeting card, do our Christmas shopping early, attend another Rose Bowl Game or Rose Tournament Parade for another year!

This is also the time of year when we resolve to make strict resolutions—and stick to them! Here's a composite of some of the resolutions "we girls" have made for 1939:

We've made resolutions stern and great—
No smoking, drinking, dancing late—
We'll be on time for work each day—
Only nice things about our neighbor say—
Wear four-thread hose to save our money—
Keep our dispositions sunny—
Wear less lipstick—low-heeled shoes—
Contribute a little "femme news"—
Fill out our income tax return—
Never say "lousy," "heck," or "durn"—
Some money we will bank away
For that proverbial rainy day—
Contribute to the Community Chest—
Get—each evening—eight hours' rest—
No candy, ice cream, cake or pie,
Or sweepstake tickets will be buy—
We now further resolutely resolve—
These resolutions ne'er to dissolve—
But, if we break them—as we fear!
We'll make some more again next year!

One of our former fellow-workers imparted some exciting information recently:

Lillian Griebner and that Thurber boy
—Art,

On the Sea of Matrimony soon will start!

Congratulations, Lillian and Art—all the girls join me in wishing you a lifetime of happiness.

True to her promise, made when we saw her at our Annual Girls' Party:

We saw Lucy Shade one recent noon,
And hope to see her again—real soon!

Badminton is the latest fad among us.
Among those who have succumbed to the lure of this engrossing game are Elizabeth

Wedlan, Grace Holm, Mary Nugent, Avis Clark and—ahem—me. Thanks to Mr. Gilchrist's interest in our welfare, we have the San Diego High School Girls' Gym for the exclusive use of *Consolidated* personnel every Wednesday evening. Badminton is a very fast game and most of us haven't as yet mastered all of its intricacies. However, a *Consolidated* never says die—so watch out, Terry, you'll have some competition before long!

As this column goes to press, Dorothy Peterson is still absent from the factory on account of illness. Hurry up and get well, Dorothy!

Night School is keeping a number of us busy these evenings. Gracie Koenig is studying Machine Calculation; Marcella Holzman and Leta Davis are deep in the throes of Shorthand and Typing, and Public Speaking is getting a great deal of my attention. When you stop to consider it, we are very foolish not to take advantage of the very excellent courses offered by our public evening schools. As some great man once said, when we decide that we have nothing more to learn, we have stopped living—we are merely existing.

That look of pride on Marcella Holzman's face recently was occasioned by the beautiful little ring made for her by her young son. She really has something to be proud of—it is very intricate work for such a little boy.

As my last comment, I would like to tell you that you have never lived until Gracie Koenig takes you for a ride in the Willys! Do you agree, Kathleen and Louise? How about you Lloyd Bender?

So long, girls, more news next month.

Catherine.



EXPERIMENTAL

No more experimental stages for those bowling boys in Mr. Koch's Dept. They are sure bringing home the points now! Wing sort of overestimated the strength of their team. Now they are quite peaceful when bowling is the chief subject of conversation . . . so boys, you had better keep going. We are on the way to the top of that scoreboard in the alleys . . . and we don't mean maybe!



To Mr. and Mrs. Walter Beyer on Jan. 2d, a boy, Ronald Walter Beyer, weighing in at 7 pounds, 11 oz. All doing fine.

It was a boy for Mr. and Mrs. G. A. Barnikel on the night of Jan. 5th at 11:20 p.m. Young Mr. Fredric Gilbert Barnikel checked in at 8 pounds, thank you!

San Diego Flying Club

If you hear buttons popping, they will be off the vests of the members of the San Diego Flying Club. We've just purchased a new airplane. It's a Rearwin 90 horsepower LeBlonde and all those that are ready are being instructed in the art of aerobatics. Come down and look over our new baby . . . we rather like to see your envious faces.

During the past month Albert Rakestraw has soloed and Mr. Goodyear has checked out for regular solo flight. We welcome to our club as a new member, Gilbert Hume, who attends State College.

Sunday, January 15th, the entire executive board, including their wives and girl friends, met at the Airport home of the Hubbards for an Italian dinner which was graciously cooked by "Francis" Buzzelli and "Henriette" Leboffe. Those attending were "Pres." Helen and "Gwen" Butterfield, "Mog" and "Ma" Hubbard, "Duke" Knutson, "Spike" McCannon, "Henriette" Leboffe, "Francis" Buzzelli, Instructor Mac and Lois McClair, Bill and Margie Travis and Virginia Staninger.

After dinner, Instructor Mac told bedtimes stories in pantomime, and they were not about flying either. Mac, during the evening, promised everyone everything. Next morning "Spike" remarked that he bet Mac was wishing he had Doc Puffle's kicking machine if he remembered his promises of the night before. Anyway, a swell time was had by all, and all agreed that the "girls" were good cooks.

Just a hint about what's coming . . . The club has an anniversary soon and we're going to crash society with a splurge . . . more later.

Maxine Hubbard.

- FOR FLAVOR
- FOR AROMA
- FOR FRESHNESS

TRY

S. J. WINES





"Henry Golem, Machine Shop Foreman, Bob Williams and Jimmy Patton, Assistants, and Inspector Jerry Litell in a huddle to determine the solution of a problem of machine procedure."

All work to be performed in the machine shop is carefully examined by the men responsible for its completion. A process card is made up showing the routine to be followed in making the part. These routings are kept for repeat orders. Material required for the completion of the job is drawn from carefully marked stock and the work order and process card is attached. These route cards and material control operations are handled by Dan Miller and Roy Larseval. It is due to their careful checking and painstaking efforts

LOOKING OVER THE MACHINE SHOP

WHEN it was decided to include an article about our Machine Shop in the *Consolidator*, we had so much material to choose from that we could easily have filled an entire issue. From the lower end with its battery of automatic screw machines to the far corner where one finds the latest type of milling machine, the department contains an orderly arrangement of all types of modern equipment. In the group of machines you will find automatic screw machines that turn out thousands of duplicate parts in a day, the latest types of turret lathes, vertical and horizontal milling machines with special vices and indexing heads that permit working out the most intricate of operations directly on the machine, an engine lathe that will permit turning a circle 50 inches in diameter, centerless grinders, multiple spindle drill presses and radial drill presses that will handle jobs as large as a piano. Also arbor presses, broaching machines, profiling machines and numerous other equipment.

Besides elaborating on this list of fine equipment we must also describe for you the group of men who manage and oversee the work being performed. Henry Golem, "Hank" to everyone, is in charge and he could proudly boast of his twenty-five years experience in machine work. But he won't talk so we had to find out from some of Hank's old buddies who tell of Hank's work in the east. He had charge of all lathe work at Curtiss for several years before becoming General Superintendent of Tonawanda Products Co. Hank came to *Consolidated* at the time that

company became a part of the *Consolidated Aircraft Corp.*

When he isn't planning ways to simplify operations or cut costs, he's out in the open somewhere with his trailer which is second only to Clark Gable's as far as equipment is concerned. His hobby is "Shooting Irons," and he can boast of some fine scores made in his attempts to "hit the spot."

Assisting Hank are Bob Williams, who is in charge of all work except turning operations, and Jimmy Patton who has charge of the operation of all lathes and screw machines including the automatics.

Bob has had a good bit of machine shop experience. He was with the J. H. Williams Co. in Buffalo for several years before moving over to Tonawanda Products. He has been with *Consolidated* since 1929. Bob enjoys fishing about as well as anyone we know, but talks about his catches less than any fisherman we ever met.

Jimmy Patton, veteran in machine work, has not only worked on every type of machine imaginable, but has spent several years with an English marine engine concern. His work took him all over the world and there are few spots Jimmy cannot talk fluently about, be it Shanghai, Singapore or Rio. For several years he was connected with the Herchell Spellman Motor Co. which made many parts for the Curtiss OX motors. Jimmy spends his spare time resting, reading and playing poker. He admits his hobby is testing the latest efforts of the malt beverage manufacturers. He says they are all good, but some are just a little better. It's the water that makes the difference.

By LARRY BOEING

that only the correct material is used to fabricate the required item.

Observing all the operations is Jerry Litell who is in charge of Machine Shop Inspection. After attending Drexel Institute in Philadelphia, Jerry, who is a native of Norway, was hired by the Chance Vought Corp. of Hartford, Conn., to do sheet metal layout work. He moved from that company to the Bellanca Corp. to do inspecting and engineering and later became connected with the Keystone Aircraft Corp. in Bristol, Penn. He left this connection to become Chief Inspector for Fleetwings Inc., and when *Consolidated* moved to the "Sunshine State," he followed. Jerry has two pet hobbies: surfboard riding and soaring, and we doubt if anyone gets more pleasure out of these than Jerry.

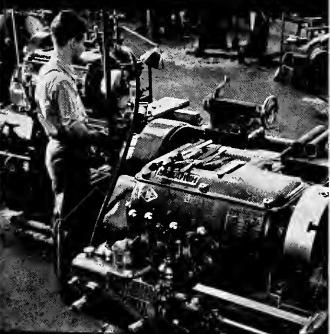
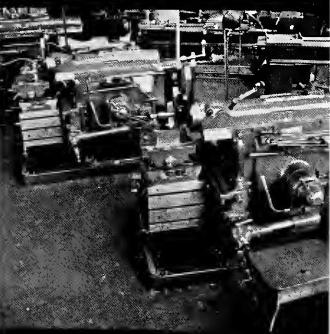
We could go on and tell you about man after man who is performing fine work everyday, but the results of these efforts are readily discernible when one looks at a completed PBY boat.

No longer are modern ships built with a conglomeration of struts, flying, landing and brace wires with their accompanying turnbuckles. No longer is it necessary to go through elaborate rigging operations to hold surfaces in their correct positions. Today's aircraft are designed and built as a complete unit with all attaching fittings and brace struts built to precision standards. The resultant craft meets all design requirements and is ready to fly when assembled. All this is possible because of ex-

treme vigilance on the part of the Supervisors, Inspectors and the man performing the job.

Regardless of the elaborateness of ingenious tooling, forgings, whose value runs into many dollars and, which have had many more dollars in machining labor put into them, can be easily ruined if some small item like an excessive removal of a few thousandths from a working surface, or a hole reamed over the permissible fitting tolerance.

When one considers the wing span of modern patrol bombers and realizes that they assemble to their correct position so readily and correctly, credit must be given, and with it, plenty of praise to the men responsible.



DRIFTING THRU DRAFTING

If perchance it's your delight
To roam the desert late at night,
And suddenly down upon you swoops
A Ford, driven madly about in loops,
Think nothing of it, oh my friend,
You're simply witness to the trend
Of Eldred's strange behavior.

YEA, folks, this column casts its lone vote for the year's Academy award to Wendell Eldred, the Wanderer of the Wasteland, for his continually brilliant performances in the strange case of Dr. Wendell and Mr. Ride. As long as he is near the sea Eldred behaves in a most orthodox manner, but as soon as the desert air assails his nostrils he suddenly becomes a man possessed, stricken with "cafard" as the French call it (Ref.: Beau Geste) or just plain "desert madness" to you.

Undaunted by his recent harrowing experience, described in our last issue, where in he got lost, drove in circles, ran out of gas, etc., Wendell went out on the following week-end and drove straight to Yuma without mishap. After he had progressed 65 miles on the return trip, he was just telling himself he had conquered Old Man Desert at last, when he discovered he had left Mac, the scottie dog, in Yuma. And so back to Yuma, out of gas again, for which he did hock ye good wife's jewels for more petrol, and to bed at three a. m. Ho hum! (Lucky boy, Wendell, our family jewels wouldn't get us past the city limits.)

So tired after the holiday season, we had intended to lose ourselves in reveries of valentines, baseball, et cetera, and to fall back on the ghost writer who does "Production Minutes" Bradshaw's stuff for him. However, when we tried to approach that worthy, we found that Bradshaw had him out selling insurance. So once more we don the eyeshade and pound the keys.

To get back for a last remark about the holidays, several of the Bonham Boys Band members arrived a little early for the Christmas ceremonies held at the plant. They laid down their horns near the gate and stepped over to Aase's stand for candy bars. When they returned for the horns, one of the boys who was a bit near-sighted without his glasses seized Bud Moerschel's dump valve test piping, mistaking it for his tuba, and Bud arrived on the scene just in time to prevent serious damage.

Probably one of the most embarrassed gentlemen in town on January 3rd was Harlan Fowler, who "left the Rose Bowl game several minutes early to avoid the traffic jam." Harlan said he heard a little shouting just after he left and he thought something interesting must have happened.

By No. 257

Speaking of football reminds us of Minnesota and that reminds us of Swedes and that makes us think of Hank Nelson. Hank had business to take up with Bill Schurr the other day, and not knowing who Bill was, he called him on the phone when he could have walked thirty feet and spoken to him in person. "All the time I was phoning," said Hank, "that gabby guy with the shiny head over in the General group was talking on the phone too, and glaring at me." Hank's latest claim to fame is his discovery of a covey of tar paper scraps in the crankcase of his latest limousine. Tsk! Tsk!

These new fellers from the east certainly strike the natives dumb around here with their strange "foreign" customs. Our secret operative caught a glimpse of Bill Wold of the Hull group running (on foot, too) up Pringle Hill the other night after work.

Dick Zerbe has revived an old gag to help pay for his Kearney Mesa summer home. He invites his friends out to the place on rainy week-ends and has them drive on the "parking lot" next to the house, having first planted his own car there as a decoy. When the friend discovers that his car is stuck in the mud Dick hails passing motorists to help tow the cars out. After three or four cars are marooned in this fashion, Dick goes over to his neighbor who brings a team of horses and pulls the cars out—for a price. Then Dick and the neighbor split the profits while most honest people are asleep.

At long last we have learned why our friend "Tip" Weber is known by a nickname and is said to have been extremely formidable in grade school. One does need to be fleet of foot or a bit indomitable to really own the name Marion Cecil. We know—our name is Noel.

Ed J. Sieck had been seeing much of Miss Ethel Elliott and now she has up and changed her name. The place was Yuma, Arizona, and the date Saturday, January 14th. Congratulations!

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WILL IT TAKE OFF? By E. G. STOUT, Engineering Department

JUST three simple words followed by a question mark, yet they open up a vast field of aeronautical engineering and research known as hydrodynamics. Everyone is aware of the field of aerodynamics and what it has done to make airplanes faster and more efficient in the air; but few realize the problems encountered in getting these large airplanes off the water and into their natural element.

The towing basin has done for hydrodynamics what the wind tunnel has done for aerodynamics. In other words it is a body of water in which models may be towed under controlled conditions so that their characteristics may be determined. Wind tunnels are a relatively recent development. However, the history of towing basins can be traced to ancient times. There are records showing that the Phoenicians, ancient rulers of the seas, used such a method to determine the relative resistance of their powerful galleys. The principle on which they based their tests is illustrated in Figure 1. They pivoted a rod in a stream and attached a model to each arm. The model that had the most resistance, moved downstream.

From this simple, but very clever beginning, the need for determining the resistance of boats has increased. However, only with the advent of ironclad ships was the technique materially improved over that employed by the ancient Phoenicians.

Today, the exact speed and range of boats may be determined far in advance of actual construction by testing an accurate model in a towing basin. Where the early basins depended upon moving a stream of water, the ones in use today tow the model in a stationary channel, the advantage being a control over the important variable, speed.

The force acting on a body partly immersed in a fluid can be expressed in the form:

$$R = p l^2 v^2 f\left(\frac{v^2}{g l}\right) f\left(\frac{v l}{v}\right) f\left(\frac{v^2 l}{y}\right) f\left(\frac{v}{g t}\right)$$

where

p = density of the fluid

l = a linear dimension

v = velocity of body in a fluid

ν = kinematic viscosity

y = surface tension

In towing basin work it is usually assumed that viscosity and surface tension effects are either small or calculable and that the major portion of the resistance, which is caused by wave making, is due to gravity. From this relation it is necessary then for the value $v^2/g l$ (Froude number) to be the same for model and full scale. Keeping the Froude number constant, the corresponding speeds of model and full scale must be proportional to the square root of their linear dimensions.

Assuming a modern destroyer to be 300 feet long with a speed of 40 miles per hour, a ten foot model would be $1/30$ scale with a speed of 40 divided by the square root of $30 = 7.3$ miles per hour. As can be seen by this example, the speed requirement for testing models of boats is not severe. In recent years, with the coming of the flying boat, the age-old problem of determining the resistance again appeared. With flying boats the problem be-

came even more critical than ever before, for every pound of resistance meant less payload that could be lifted by the excess horsepower of the engines. However, when the flying boat hulls were placed in the ship basins, it became immediately apparent that extensive redesigning was necessary to take care of the much higher speeds necessary. Never before had conventional water craft reached the speeds that flying boats take off at, and to make matters worse, instead of $1/30$ scale models, the scale became $1/10$ to $1/8$ making the model speed required, closer to full scale speed.

For comparison with the destroyer, assume a flying boat 80 feet long with a takeoff speed of 100 miles per hour. A 10 foot model would be $1/8$ scale, with a takeoff speed of 100 divided by the square root of $8 = 35$ miles per hour. With this requirement in mind, the National Advisory Committee for Aeronautics built a special towing basin for seaplanes, capable of towing the models 60 miles per hour. This basin is located at Langley Field, Virginia, and is 24 feet wide, 12 feet deep and approximately 3,000 feet long. The models are towed by a large welded steel tube carriage which spans the tank and is driven by eight electric motors which deliver a peak power of 220 horsepower each, or a total of 1,760 H.P. The motors are connected directly to eight large pneumatic drive wheels which run upon heavy H-beams set with the web vertical. The rails are carefully laid parallel to the water surface, which conforms with the curvature of the earth's surface. The entire basin is enclosed to prevent winds of unknown magnitude affecting the accuracy of the readings.

Upon the carriage is mounted a dynamometer which measures the resistance of the model through a parallel linkage mechanism. The linkage is attached to a calibrated spring whose displacement is measured by a beam of light falling upon a mirror. The light is reflected from the

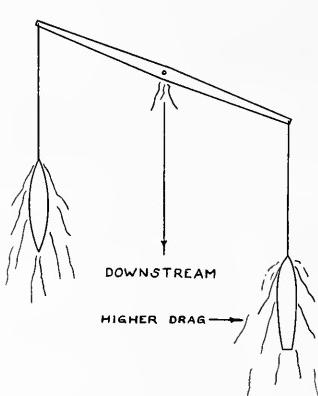


Fig. 1. Towing basin—1500 years B. C.

mirror to a screen where visual readings may be made. The light also falls upon a moving roll of photostat paper which makes a permanent record of the resistance. Stretched the length of the tank is a steel tape which has a hole in it every five feet. The tape passes through a photoelectric cell which records the five-foot holes on the photostat paper, giving a record of distance. The photostat paper also records a flash of light every second from an electrical timer which completes the record. The model is mounted upon a shaft which pivots on a quadrant allowing the trim to be set at any desired angle for fixed trim runs, or free to pitch for free trim runs.

As a tank model consists only of the hull of an airplane, the lift derived from the wings must be obtained from some outside source. This is accomplished by attaching the hull, through a pulley linkage, to a hydrovane which runs inverted in the water. The lift from the hydrovane varies with the square of the speed just as an airplane wing and is calibrated to give the correct getaway speed for the airplane being tested. In this manner the hull is lifted out of the water in the same manner as in the full scale airplane. By testing the hull in the basin at various loads, speeds and trims, the characteristics for all attitudes and conditions are obtained and plotted in curves of resistance, trim, and pitching moment, against speed. As all data is reduced to non-dimensional coefficients, the results may be applied to an airplane of any size.

Tank models differ from wind tunnel models in that there are no wing, tail or other appendages, as only the characteristics of the portions that are affected by the water are desired. However, the hull, particularly below the water line, must be extremely accurate. The models, as a rule, are approximately ten feet long and are built of laminated mahogany. The center is usually hollowed out to a wall thickness of approximately one inch to lighten the model and facilitate handling. Even with the center hollowed out, the models weigh between 100 and 200 lbs. The exterior is finished with three or four coats of varnish and rubbed to a high gloss, thus insuring a minimum resistance and absolute watertightness. The latter is extremely important as any water absorption would cause swelling, resulting in a change of dimension and inaccuracies.

The N.A.C.A. is continually building and testing models of hulls, and the results are reflected in the increasing efficiency of the flying boat. It is ironic that the best hulls hydrodynamically are the

WING KEYHOLE

By Browne

FRANK "His Honor" HEIDEMANN the Mayor of Crown Point, has been busy choosing his staff and understudies. It is rumored "His Honor Mayor Heidemann" will open a city hall in his garage where weekly sessions will hold conferences.

We wonder how Charlie Wegner is making out on his New Year's resolutions in the last issue of the *Consolidator*. . . . Keep your chin up, Charlie!

There must be plenty of work at North Island. We haven't seen Dick Senn in three months.

The boys think Vic Atkinson and Adam Boone (wing inspection) should go to "Sunny California" to get rid of their colds. How about it, Gents?

We wonder why Fred "Seagull" Adams eats under an umbrella every noon?

Craig Clark was seen at lunch recently eating a large striped lolly pop, and drinking milk. The boys say Craig's three-cornered pants are now on order and should arrive any day.

Mr. Fred Kipple and Miss Deverly Newton recently made a trip to Yuma. Mr. and Mrs. Fred Kipple we wish you all the success and happiness in the world, and may all your troubles be little ones.

Herb Ezard's "Hull lifter upper" looks like a real job!

Mr. and Mrs. G. Barnikel announce the arrival January 5th of an 8 pound baby boy Frederick Gilbert. Barney says the milk consumption is two gallons.

Dick Haskins has left *Consolidated* to start on a gold mining venture. We will miss you Dick. Let's hope you strike a rich vein and come back steppin' high!

worst aerodynamically, due to the steps and sharp chines necessary. However, extensive research and testing are bringing the two limits ever closer together.

As a result of the work done by the N.A.C.A., the manufacturer has a wealth of data upon which to base a new design. Upon choosing the hull which most nearly conforms with the design under consideration, the preliminary performance may be predicted. As the design proceeds, an accurate model is built and tested as a check and a basis for the final guarantees on the takeoff performance. Therefore, by the use of this procedure and the results of the towing basin, flying boats are becoming larger and more efficient, with no risk building a boat that will not takeoff.

HULLabaloo

By Hep

ONCE again it was "smoke more cigars week" in the Hull Department. A 7 lb. 11 oz. baby boy arrived at the Beyer house at exactly 1:41 p.m. January 2, 1939. Ronald Walter Beyer is the name.

If "Rosy" Roese has shown any great change in his usual calm exterior, he surely has just cause. The one "bank night" he did not attend, at the neighborhood theatre, his name was called. It was for \$350.00.

"Freddie" Grossher is becoming more absent-minded every day. His latest achievement was as follows: One morning, not so long ago, Mrs. Grossher gave Freddie his lunch and also a sack of scraps to dump in the garbage pail as he went out. Yep, that's just what he did. He threw his lunch in the garbage pail, and carried the sack of scraps to work with him. Needless to say Mr. Grossher bought his lunch that day.

Our good friend Erich Stephan took "the fatal step" January 14th. "Congratulations, and thanks for the cigar."

We used to think Sam Galasso was a real "he-man," but after seeing his lunch all done up in pretty gold ribbons, we are inclined to doubt it. "What have you to say for yourself, Sam?"

Have you heard about Ray Kendall's dry-cleaning method? You don't even remove your clothes. It's absolutely guaranteed to do a one hundred percent job. Not only on your clothes, but yourself, also. "Will it remove dandruff, too, Ray?"

We don't know just what "Red" Chaplin had against "Scotty" Doig. Maybe it was an accident. But, "Scotty" says a golf ball in the middle of the back can sure take the joy out of golf. "I reckon you'd better stick to a 'sissy' game like soccer, Scotty."

We hear that "Dutch" Klein has been "pulling all the strings" he knows to get a ten-percent discount on his automobile license tax. "Ten-percent wouldn't amount to very much on that 'puddle jumper' of yours, Dutch."

PRECISION AUTOMOTIVE WORK

Hacker Service

1454 Union Street

ON THE BEAM . . .

IT'S about 10:00 p.m. You make a quick dash from the car to the porch, stomp and shake a good bit of "California Dew" from your person and just as you reach for the door, you catch the familiar sound of a big airliner going overhead. He doesn't seem to be flying very high. "He better just keep right on going until he's out of this kind of weather before he tries to make a landing" you remark to yourself.

The sound of his motors drone off into space. You wriggle out of your overcoat, rubbers and slip off your gloves, gain your key and do a bit of fumbling for the key-hole in the pitch darkness . . . then you catch the sound of the plane coming back. The motor seems to be missing. The plane comes closer and unable to resist any longer you run back onto the porch and search the broken, low hanging clouds for the approaching plane. With a "swish-chunkety-plunk . . . pop!" of the easily idling motors you may catch a momentary glimpse of the sleek metallic ship as the city lights reflect on the undersurface of the wing and you realize he's not in trouble, but simply settling down with remarkable precision thru the scuttling clouds for a three-point landing . . . They can't see the airport, and yet they hit it every time as they come down thru the clouds! How do they do it?

Talking with E. C. Butler, operator in charge of the Civil Aeronautics Authority Communication Station located atop the Ryan Building on Lindbergh Field, you quickly gain a picture of the amazing simplicity of the idea behind the guiding in of these airplanes on the "beam," but you're apt to be stumped again and again in trying to determine exactly how it works.

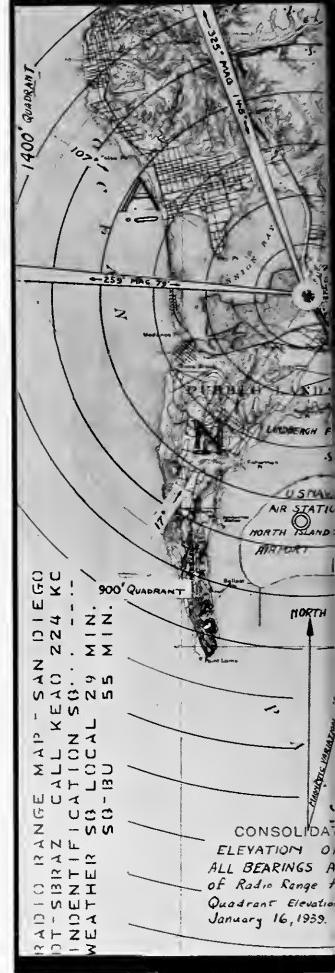
The simple explanation is: The pilot comes in on the beam, passes a certain point, and then simply follows a given procedure thru the use of his instruments, comes right on down thru the clouds and hits Lindbergh Field right on the nose when he emerges. It's as simple as that! He just levels off and makes his landing.

But the explanation of how it works isn't quite so simple. In the technical end of this radio magic there are things which at first glance don't quite make sense. For instance: The older location of the radio beam station was at the foot of Harashy St., on the sand flats near the Marine Base, just .6 miles from the field.

Now, just recently, they've moved the station on out the main highway near the Cudahy packing plant and it's 2.5 miles from the field. It would at first appear that moving the radio beam station farther away, would make hitting the field, when coming in for a landing thru instrument weather, far more difficult, but the contrary is true. Moving the station to its present location has several advantages over the older one: The first is that the move makes the approach to Lindbergh Field standard . . . the same as that for all other fields throughout the country. Secondly, the older location had a tendency to swing the planes close to the area of heavy flying activity on North Island where there was danger of collision. Thirdly, the older beam cut across just one corner of Lindbergh Field. Now the beam bisects it nicely and makes for greater accuracy in the approach.

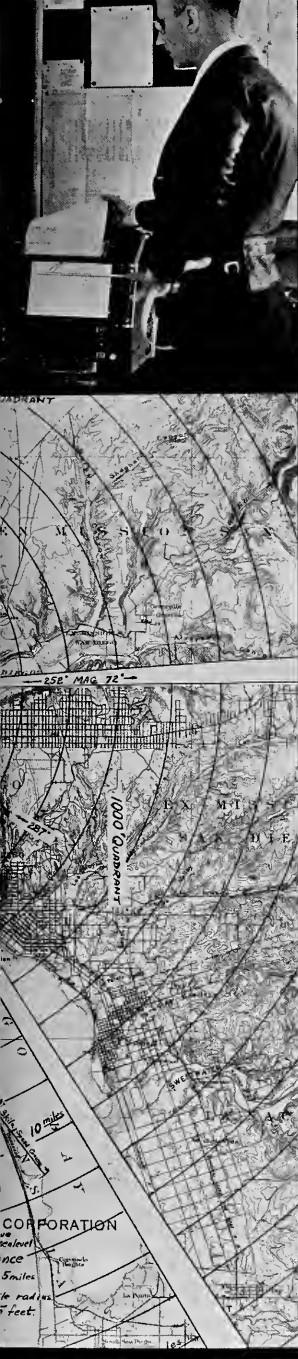
As most everyone knows, flying in on the beam is a matter of keeping the plane within a definite segment of the sending station's signals where a constant note is heard in the receiver. If the plane wanders out to either side of this zone, the code letter "A" (.-) or the code letter "N" (-.) is heard, depending on which side of the beam the plane is flying. On the beam, which converges on the sending station, the note is really the interlocking of the two letters into a continuous note. Since the letters "A" and "N" are used by all the beam stations, it would be possible to pick up the wrong one were it not that the station interrupts on a frequent schedule to transmit the identifying station letters, thus identifying the beam on which the pilot is flying. The San Diego station letters are "SQ", while those of Columbus, Ohio, are, for instance, "CO".

The San Diego beam station in its new location is more powerful than previously and has a simultaneous range (beam) and broadcast features. The broadcast frequency is just 224 kilocycles and over this at given intervals are given the weather report broadcasts by voice. The range frequency is just 1020 cycles (not kilocycles) off of this. The result is that when the two are sending simultaneously, the two frequencies "beat" in such a manner that they become audible over the receiver. The idea is neat: The simultaneous feature takes up but a scant fraction of the audio field and the airplane receiver when set on 224 kilocycle may use an audio filter



Above: H. C. Helmes, Senior Operator, corner of the control headquarters at Lindbergh Field, San Diego, Calif.
Below: Map of the new beam transmitter at Lindbergh Field, San Diego, Calif.

This shows how the beam cuts directly against data.



e, Assistant Operator, snapped in one
er, Operator in Charge, was at the new
ure was taken.
by Chief Test Pilot "Bill" Wheatley.
the new location, and the other perti-

and cut out either the broadcast of the weather report or the range. If the pilot is far away he most probably is more interested in knowing the weather conditions at the distant station to which he is tuned. If he is close, he is more apt to want to keep right on the beam. Previously it was necessary to stop the beam for the broadcast of weather, or vice versa. Now the pilot can secure either, depending on which is the more important to him. Without filters it is possible to "de-tune" one from the other slightly, and thus gain the desired broadcast report or beam.

Highly interesting too, is the new station for its automatic features and the safeguards built into it to insure that its operation will be as nearly infallible as man can make it. The entire station is automatic and is controlled remotely from the receiving station at headquarters on Lindbergh Field. All that is necessary is to throw a switch and dial a code number on an ordinary telephone dial at the headquarters and the transmitters will do the bidding of the code. This is done as a regular matter of course at 29 and 55 minutes after each hour when the station weather reports are given out. Just to be doubly sure that the transmitting station giving out the guiding beam won't go out of whack at just the wrong moment and leave the pilot literally "up in the air," a standby transmitter is ever-ready to be dialed into action in case of failure. There then remains only one more something that might go wrong and interfere in the normal course of events: The station is supplied with power from the city's power lines. Should they fail, or should the voltage in the power line drop below 90 volts for any reason, the station would automatically cut in and start a gasoline operated motor generator to supply the current for the station, cutting out the city power lines as it did so. Should the city power become normal, the gasoline plant would shut itself down and the equipment would be automatically connected with city power again. Thus the transmitting station sending out the beam and the weather is safeguarded against almost every contingency that might arise. The beam is as safe as the lighthouse beam to the seaman, guiding unerringly . . . and it is this that the airmen come in on so surely for a landing, right down thru the clouds to the waiting field below.

The receiving station equipment is at headquarters on Lindbergh Field. The call for this station is KEAO and the receivers and loudspeakers are constantly going to pick up any message that may come from the sky. Since only those airplanes equip-

with radio and instruments are allowed to fly during "instrument weather" (visibility less than 2 miles and ceiling under 800 feet daytime, visibility less than 23 miles and 1000 feet at night). And since they must secure permission to do such flying, the civil aeronautics authority has control over their flying. Their destination, time of arrival and all pertinent data must be given in advance of the flight before they are permitted to take off. Likewise they must receive permission to land, thru contact with their destination. Thru this control, it becomes possible for the control station to "stack" up several planes at varying altitudes in thick weather, and then carefully guide each one down thru the thick weather without danger of the planes colliding in mid air! Just another of the neat little tricks that may be performed by the magic of the contact thru space thru the radio. As the number of planes constantly plying the air increases in the future, this phase of the work will become increasingly important.

Vital even now, is the covering of the continent and surrounding area with weather reports for the guidance of air activities. At the receiving station on Lindbergh Field there is an almost constant clatter of the busy teletype machines receiving information four times each day from weather stations which give the weather over the ocean, Canada, the western states and the whole of the United States. From this information, received in an abbreviated code, weather maps are compiled. These give the airman about to embark on a flight a very close approximation of the kind of weather he will encounter enroute and upon arrival at his destination. In addition, the teletype service provides at San Diego hourly collections of "spot weather" from most airway points in the western United States.

On one of the teletype machines comes a string of dispatches advising of the departure of civil, airline, Army, Navy and Marine airplanes. In an abbreviated code these messages disclose much pertinent data which is very handy should the weather close in and make flying difficult for the airmen, or should any difficulty arise. A typical dispatch reads as follows:

XMX P2 SQ

XMX

NC21128 STSN PATTERSON X3SQ
30 XMX 120 3105 D1430PS O+55
RMRKS QVQA.

Translated it means that a message destined for the Army Airport at March Field from San Diego is approximately as follows: The airplane licensed No. NC21128, a Stinson type aircraft, piloted by Patter-

son, took off on flight X3SQ 30 from San Diego flying at 3,000 ft. bound for March Field. He will fly at a rate of 120 miles per hour and his radio transmitter operates on a frequency of 3105 KCS. He departed at 2:30. (The station operates on a 24-hour clock schedule, which makes 1430PS read "2:30 Pacific Standard Time"). His flight time is 55 minutes, and when he arrives his arrival is to be reported back to the origin of his flight. Many of these dispatches are carried as an accommodation and to keep in practice, but when a tight situation is brought about by a weather quirk or other circumstance, the operator at any station has immediately available the entire picture of the flying condition about his airport relative to the airplanes in the vicinity and can work out a scheme for bringing all through safely.

All this points to a complex, though beautifully simple plan of meeting old man weather from any angle he might choose to present, and simply outwitting him at every turn. It is small wonder then, that the planes, coming in on a beam they can't even see, passing over a point they likewise cannot see, can nevertheless make a drop through low hanging clouds and come out on the nose of the airport, ready for a landing. They're not taking the chances commonly supposed. They have a complete "picture" invisible though it may seem, of every angle that involves their flight and safe arrival at their destination.

ENGINEERS' BOWLING LEAGUE

TEAM STANDING

	Won	Lost
1—Loft	12	8
2—General	11	9
3—Equipment	11	9
4—Hull	10	10
5—Power Plant	9	11
6—Armament	7	13

INDIVIDUAL AVERAGES

1—Coughlin	173	
2—Sebold	165	14—Devlin
3—MacDougal	161	15—Stephens
4—Dormoy	159	16—Halverson
5—Farnsworth	158	17—Kirk
6—Whitaker	155	18—Gorman
7—Stacy	154	19—Learnam
8—Abels	153	20—Schurr
9—Whitney	151	21—Waite
10—Isham	149	22—Thompson
11—Clayton	146	23—Gerber
12—Fowler	145	24—Carlson
13—Ekrem	145	25—Hall
		105



The Model Shop. Left, Earl Wesp and Geo. Schairer hold a wind-tunnel model of the XPB2Y-1 wing to give some idea of the size models employed in the tunnel. In the foreground Bert Fairman and Wm. Clark apply the finishing touches to a display model of the XPB2Y-1 and Monroe Bauer inspects its sister ship. In the background, Carl Shumaker, Walter Seaderquist, Cliff Berger, Harry Larsen and Fred Harger are at work on various other projects of the model shop.

WIND TUNNELING . . .

By GEORGE SCHAIER

ALTHOUGH the wind tunnel has come to be used very extensively in the preliminary design of airplanes, very few are at all familiar with what is done in the tunnel. Since coming to San Diego several years ago, *Consolidated* has been making an ever-increasing use of the ten-foot diameter wind tunnel at the California Institute of Technology in Pasadena. In an article in the November, 1936, issue of the *Consolidator* Mr. K. D. Wood described the wind tunnel and told something of its operation. Since then we have taken up the construction of our own models and have made much more extensive tests.

The wind tunnel is an oracle to which we submit our ideas, new designs and problems. From it we hope to get answers which, although obtained on a small-scale model, will be useful in considering full-sized airplanes. Wind tunnel tests can be made at a fraction of the cost of full-scale tests and due to the fact that most of the variables inherent in full-scale testing can be controlled very readily in the wind tunnel, the wind tunnel tests can be more readily interpreted. Furthermore, a great many tests can be made in the wind tunnel which could not possibly be made in free flight because of the danger and complication involved, not to mention expense.

A great many different things can be measured in the wind tunnel. These include lift, drag and pitching moment characteristics of a complete airplane; drag of va-

rious items on the airplane, interference of various items on the airplane, control effectiveness, stabilizer setting, control forces, tab effectiveness, yawing moment characteristics, wing stalling characteristics, flap tests, and many other things. Since the wind tunnel tests are conducted on models under restricted flow conditions in the wind tunnel and it is necessary to hold the model with wires or struts; it has also been necessary to make tests to determine the effect of these interferences, wires, struts and of scale effect.

A description of the general testing procedure is probably of interest. When a new airplane is contemplated or changes in existing airplanes are to be made, the decision is made as soon as possible as to what shall be tested. As soon as a definite decision can be made, drawings to full model scale are made. At the same time a check is made with the model shop to make sure that they have the material to make the model from. Since most of the models are made of laminated mahogany an attempt is made to anticipate future needs and a large stock of laminated blocks is kept on hand from which it is usually possible to choose blocks for the new model. There is usually such a great rush to get the model completed that complete drawings cannot be made before the model is started and it is necessary therefore that the model shop and engineering department work in very close cooperation.

LINDBERGH FIELD CAFE

Administration Building

Lindbergh Field

"The Home of Aviation"

Our model shop, on the second floor of the experimental building, is under the direction of Mr. Earl Wesp and Mr. Monroe Bauer. It is very seldom that it is possible to give the model shop a job to do and let them finish it without having to rush them, yet they have done an excellent job of turning out models which must not only be very accurate but which are almost invariably wanted yesterday.

Even before starting the model it is necessary for us to contact the wind tunnel and get a date on which we can have tests made. This is necessary because the wind tunnel is in such great demand that often it will have all of its time scheduled for two or three months in advance. About this time too it is necessary to know in detail all the tests that we expect to have made in order that the model can be so made that very little work will be necessary on the model during the test program in the wind tunnel. This often means quite complicated models with practically everything on them removable or adjustable. Models of airplanes which are to be built usually have the wing, hull, nacelles, floats, tail, turrets, and other items removable; movable flaps, ailerons, elevators and rudders, adjustable stabilizer; and removable balances on the elevators and rudders. All of these items must be made so that they can be readily assembled or disassembled. After the model has been carefully made to templates and has been inspected, it is given a fine finish of black lacquer. This requires several days of very hard work by our model painters and, being the last thing to be done on the model, is always the most rushed. Since any roughness on the model has a measurable effect in the wind tunnel, the finish must be very smooth and most of our models are really smoother than the hoods of the new 1939 cars.

The models are then shipped in the large model boxes to Pasadena for testing. One recent boxload weighed over eight hundred pounds. The model itself will often weigh over 200 pounds and requires several men to handle in its assembled condition. Most of our models have spans of between eight and nine feet and are built to an accuracy of several thousandths of an inch. After a day of hard labor in the model shop in Pasadena the model supporting fittings are in place and the model is ready to go in the tunnel. The model is hung upside down in the tunnel on wires. Since the lift of the model will often exceed one thousand pounds it is necessary that it be very firmly anchored with fairly large wires in order that no accidents will occur. With all of our fingers crossed we

may say in a low voice that we have not yet had a model come loose and go down the tunnel. This has happened occasionally to others with rather disastrous results to both the tunnel and the model. The model tests are conducted by the staff of the Guggenheim Aeronautical Laboratory of the California Institute of Technology under the direction of a company representative. There are several permanent members of the wind tunnel staff but a great deal of the work is done by graduate students at the school. All of this work is done under complete secrecy and Cal. Tech. is to be complimented upon her ability to conduct tests for many different manufacturers without disclosing information to the wrong parties.

The wind tunnel itself is very large and takes up three floors and two basements in the building in which it is located. It requires at least three men to operate it safely and for some tests it has been necessary to use as many as five men. During a normal running schedule three men will be running the wind tunnel, a fourth will be computing the results of the last test and a fifth will be making graphs and other records of the tests. The wind tunnel is normally operated from seven in the morning until eleven-thirty at night with two and a half hours out for meals. This makes a normal running schedule of seventy hours a week and requires several crews each day. A normal running schedule on a new model often requires from one to two weeks of continuous testing after which the model is returned to our model shop for modifications, repairs, etc., and then is often retested to discover if the changes have introduced any complications and produced the desired improvements. During all the tests complete records must be kept of everything that is done. This usually includes numerous photographs, a description of the model by symbols, written notes, sketches, etc. and by fairly complete drawings which are included in the final report. The final report is written by Professor Clark Milliken and others on the wind tunnel staff and presents all of the data run in a standard form so that it can be readily used. This report is blacklined and bound. Several copies are usually kept in the *Consolidated* files although the original is kept by the wind tunnel. After all the tests are completed the model is disassembled, returned to San Diego and is hung up on racks in our model shop. After several years of testing these racks have become full to overflowing.

The model shop is called upon to make other models beside wind tunnel models.

In recent months several dynamic and normal towing basin models have been built. A great number of small scale models have been built and several large and very accurate scale models.

CONSOLIDATED PHILOSOPHY

The ablest men in all walks of modern life are men of faith, most of them have much more faith than they themselves realize.

Division of wealth would never have been thought of if some man's hard work had not created things that lazy men want.

Tell me with whom thou art found, and I will tell thee who thou art.

He is always the severest censor on the merits of others who has the least worth of his own.

The best way to be free of the law is to obey it.

Today—Finish every day and be done with it. You have done what you could. Some blunders and absurdities no doubt crept in; forget them as soon as you can. Tomorrow is a new day; begin it well and serenely and with too high a spirit to be cumbered with your old nonsense. This day is all that is good and fair. It is too dear, with its hopes and invitations, to waste a moment on the Yesterdays.

What industry needs to do today is to go back and check a lot of things now taken for granted.

It is better to miss high aims than to hit low ones.

The man who procrastinates is always struggling with misfortunes.

The question is not whether you have failed but whether you are content with failure.

You will never be sorry for living a white life; for doing your level best; for your faith in humanity; for being kind to the poor; for looking before leaping; for bearing before judging; for being candid and frank; for thinking before speaking.

Always remember that every man you meet is in somewhat your superior—and in that you can learn from him.

If you have the will to do it, it can be done.

D. R. K.

Good Food at
Moderate Prices

Open Sundays
and Holidays

Morgan's Cafeteria

1047-1049 Sixth Ave.

Between Broadway and C St., San Diego



Becalmed off Point Loma.
The Wehmanens and the Skipper at Avalon.
Boiling along—Cliff Ekrem and Gene Holston.

WHERE THERE'S A WILL . . .

By
R. R. HOOVER

"—and we three swear never to visit Catalina Island until we sail there in our own boat!" Solemnly we shook hands; Rod Mathews, John Martin and I, tho' in that summer of 1928 our possession of a suitable boat seemed improbable for some time to come.

It was not until one day in October, 1936, after I had been at *Consolidated* for nearly a year, that I heard of a boat which might suit our desires, and finding the price within the limits of our combined purses and credit, we soon became the owners of Barquita, a 32-foot auxiliary sloop. She was sturdy and roomy but in need of a great deal of work and new materials before she could be considered seaworthy.

She was built in 1935 by a San Diego man, Nate Wellman, of the Sheet Metal Dept. and was originally intended for a South Seas cruise then contemplated by her five owners. However the cruise never materialized and she was offered for sale for the amount still owed to her builder.

Winter brought the usual storms and we soon learned that a boat can inspire more worry than any other possession, and many sleepless nights were spent aboard while Barquita pitched and rolled and tugged at her mooring. I recall one stormy day when I was unable to get ashore and to work until early afternoon and then only at the expense of a good wetting.

For the first five months two of us lived aboard, cooking our meals on the galley stove and sleeping on the makeshift bunks and spending our evenings and week-ends building four good bunks, adding sink, toilet, etc. When we finally moved ashore we had made appreciable progress toward finishing her up below decks. Our light was a Coleman lantern, and was it hot!

Then summer brought warmer weather and longer days allowing us to work on the rigging and deck and as August, 1937, approached we began to plan our long anticipated cruise to Catalina.

August 14th was chosen as our sailing date and a week was spent stocking Barquita with food, water, gas, oil and all the gear necessary for such trip, and on the evening of August 13th she was ready and waiting for the trio of us who would complete her crew.

They finally arrived at 2:00 a. m. Aug. 14th and no time was lost in getting Barquita under way. An hour later we rounded the whistler buoy off Point Loma and set our course for Avalon, Catalina, 78 nautical miles away.

Shortly after leaving we were becalmed and were forced to use the "mill" for the remainder of the trip; finally making our anchorage at Avalon that night, happy but too exhausted to be enticed ashore by the apparent nite life of that beautiful little island city. However, ours was a sweet sleep for at last we had fulfilled our boyhood dreams.

Followed a week of swimming, sailing, fishing and shore sports after which we set sail for home—our great adventure ending with our arrival in San Diego 17 hours later.

During the spring of 1938 still more work and money was spent in modernizing our rig and making Barquita more "homely" by the addition of electric lights, radio, etc. At this time Gene Holston, Engineering Dept., bought a fourth interest in the boat and we two lived aboard from May 1st until Sept. 1st of this year.

In June we again set sail for Catalina and spent 12 days cruising among the Santa Cruz, Santa Barbara, Santa Rosa and Anacapa Islands, stopping at Avalon and the Isthmus at Catalina on our way up and at Avalon on our way back.

On this cruise our crew consisted of Gene Holston, Rod Mathews and John Martin, but business forced John to leave us at Avalon, much to our mutual sorrow.

The remaining three of us completed the eventful 500-mile trip and returned enriched by memories of all night sails over moonlit seas, the thrill of an escort-

ing school of thirty-foot killer whales, barely clearing a dangerous passage as a dense fog closed down, a visit to Painted Cove on Santa Cruz, strange, small harbors and romantically named caves and of all the associated pleasures of blue waters, brisk breezes and good comradeship.

Over the week-end of the Fourth of July, Gene and I were joined by Oscar Wehmanen, Engineering Dept. and his pretty and capable wife Myrtle, for a short cruise to Avalon. Leaving San Diego Friday night, July 1st, we were snugly anchored in Avalon Saturday morning and spent the following two days swimming, hiking, visiting the yachts anchoring about us and dancing at the Casino.

Sunday nite we were treated to an unexpected thrill when we found our anchorage was directly below the spot chosen for the fireworks display and between watching the fireworks and extinguishing the sparks which fell aboard, ours was an exciting evening. I recall Holston's disgusted grumble and vicious sputtering when he discovered a piece of sulphur had added its flavor to his scotch and soda.

Monday noon saw us standing out to sea before a brisk breeze, Avalon falling astern and San Diego somewhere below that part of the horizon indicated by our bobbing bowsprit. 4:00 a. m. Tuesday

Does the sea bring out the inner man?



morning we dropped anchor at our old spot at La Playa and were again back in the work-a-day world, sorry to have it all end so soon but cherishing new adventures just past.

Now, I suppose you readers have been envying us our experiences and have decided that we must enjoy mighty substantial incomes in order to own a boat and make such trips? But in this respect you are mistaken: Barquita has cost us only about \$900.00 to date, and the cruises are less expensive than any week-end motor trip you may have made! To be explicit, we four split the entire expense of our July week-end in Avalon: food, drink, gas and oil and each paid the sum of \$2.40 for his share! Can you eat, sleep, and buy gasoline for a three-motor day trip and spend less?

But we do spend a great deal of time painting, scraping and generally maintaining our boat, and sometimes she interferes with our week-end plans, yet she repays our inconveniences many times by the week-end sails and longer cruises which we frequently enjoy.

So if you are another of those adventurous souls who yearn for blue water, rolling decks and wind whistling in the rigging, don't ignore your desires with a disconsolate shrug of the shoulders: instead, plan for a day when you will own the boat you desire and if you want it badly enough that day will come.

BADMINTON

THAT there's good fun and exercise in chasing a "little white bird" around a rectangular court is being proven by a large group of badminton fans turning out Wednesday nights at the San Diego High School Girl's Gym.

Beginners appear to be earnestly trying to develop a good game and the committee is pleased to note that many are succeeding. All players are looking forward to our first tournament to be held early in February which will feature "veteran" and "novice" players competing in singles and doubles in their respective class, and then a mixed veteran and novice doubles combination. The committee will rate all players just before the tournament. The committee has arranged suitable prizes for winners in all competitions. You all are urged to attend our Wednesday night "get together" and prepare for the first play-off. Included in the committee are: E. C. Terry, J. Bowley, W. C. Gilchrist, F. L. Kastelic and J. O. Lockwood.

COUGHLIN'S COUGHINS

The Engineers held their monthly Golf Tournament at the Balboa Municipal Golf Course and it was a grand success.

Listed below are the scores:

	FIRST FLIGHT	Gross	Handicap	Net		Gross	Handicap	Net
1—Sobold	89	19	70		12—Schurr	115	35	80
2—Hemphill	78	5	73		13—Robbins	114	31	83
3—Moe	94	20	74		14—Fowler	126	42	84
4—Bourque	84	9	75		15—Hamson	135	45	90
5—Ring	95	19	76		16—Whitney	125	34	91
6—Sheahan	85	9	76		17—Winters	134	40	94
7—Ekrem	96	18	78		18—Schaire	150	45	105
8—Miller	92	10	82					
9—Coughlin	101	17	84					
10—Yater	107	19	88					
11—May	107	19	88					
12—Farnsworth	107	19	88					
	SECOND FLIGHT							
1—Sutton	94	23	71					
2—Weber	94	22	72					
3—Bauer	102	27	75					
4—Kelley	101	23	78					
5—Freel	99	21	78					
6—McGuiness	100	22	78					
7—Carlson	105	27	78					
8—Abels	107	28	79					
9—Stephens	109	29	80					
10—Watts	104	23	81					
11—Schwarz	103	22	81					
12—Devlin	111	28	83					
13—Nelson	110	27	83					
14—MacDougal	111	26	85					
15—Waller	114	27	87					
16—Wainwright	123	29	94					
17—Maloney	126	26	100					
	THIRD FLIGHT							
1—Taber	99	43	56					
2—Achterkirchen	102	39	63					

Three R's?

When a man bites a dog that's news, and when Chief Test Pilot "Bill" Wheatley goes back to school, that, too, is news. Bill is just back from two weeks spent at the Boeing School of Aeronautics at Oakland, acquiring and adding to his flying licenses an Instrument Rating. He did so, however, without malice toward his old faithful mount, the Fleetster. The Fleetster, it seems, just doesn't have dual controls. The Instrument Rating is acquired through a tough test and is required by all airline pilots. Bill's airline piloting was some time back, and on an airmail route in the days when the only "Instrument Rating" was a sensitive seat of the pants.

★ IMPORTANT ★ ANNOUNCEMENT!

On Feb. 3d—

WARNER BROS. WILL PRESENT A
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LOCAL THEATRICAL HISTORY!

SPRECKELS
INDEPENDENTLY OPERATED

Final Assembly's One Man Sensation

Sam, Sam, our electrical man
Takes the volts and makes them ram,
Ohms and watts plus the amps
Are all in a day's work for Sam.

He goes here and there looking for trouble
But just call Sam; he'll fix the muddle,
Never an argument did Samuel lose
For the opposition gets tired of hearing the blues.

Sam, Sam is our electrical man
Always quick on the trigger when in a jam,
Never a let down all day long
For he has to keep looking for Baldy Long.

Sam will yell if a flash light is left on,
But it's inspection's fault if the circuit's wrong,
Sam's motto is, "That I'm all right,"
It's the rest of the shop that's got the blight.

In troubled times when the wires are hot
The landing light switch makes the outboard
boom drop,
The patient nerves of the foreman are shot
Sam will say, "It must be the equipment that's
bought."

With leather coat and sun visor
Hands in his pockets and much the wiser,
An argument on his lips and a blue print on his hip
Samuel is all set for the day to do his bit.

A push cart on wheels, is Sam's delight
To the layman, it surely is quite a sight,
An electrical monstrosity of rare design
Could only have been created by a master-mind.

There's never any waiting for the electrical crew
According to inspection they're never through,
But our Samuel hardly agrees with that
For his push cart on wheels will take up the slack.

Three days behind, and the wires still out
What's the matter with the electrical stuff,
Of course, it's not our Sam to shame
It must be inspectors again, that are to blame.

When in a hole and on the spot
The work looks bad and the boss is hot,
The wires are wrong and the ship won't hop
Sam still says, "We're the Cream of the Crop."

Now this is the story of our electrical man
A mighty fine boy is our arguing Sam,
He's always right and you're always wrong
That is the reason he seems to get along.
Red McLaughlin.

Born to Mr. and Mrs. Ray Deters, No. 1223, Tool Room . . . a bouncing baby daughter, on Sunday, January 15th. The young lady checked in at 7 pounds, 13 oz., but has not as yet disclosed her name. Congratulations.

PRODUCTION MINUTES By "BRAD"

IN case we didn't remember before—"Happy New Year." So with most resolutions broken, the holiday parties a headache of the past, Santa Claus wondering why the kids said "nerts", and the "bags" mostly gone from our eyes, we will give you the lowdown on the lads and lassies during the past month.

"Sherriff Dad" Sheppard was the greatest mistletoe casualty when Blanche Davis caught him leaning too far toward the switchboard. "Dad's" reaction would have put a western bucking bronco to shame and when Blanche finally turned him loose, the lobby sounded like a herd stampeding down a canyon. "Whoopee" says Dad, "if I'd only had my 'six gun,' I would have shot down the chandeliers." The mustache was waxed and streamlined the next day to eliminate interference.

Gracie did not have such good luck, however, as Lloyd Bender and her other quarry escaped her grasp. "Sassafras" says Gracie, "we short people never seem to get a break, as just a little more reach and I would have had 'em." Next year try a butterfly net for better results, Gracie.

The new year also finds the budget balanced out La Jolla way according to a report from Mrs. Ernie Johnson. "For every empty bottle 'My Ernest' retrieved from the Hibert garage the latter retaliated by cleaning out my ice box of all the leftover food," says Mrs. Johnson. "One day I returned to find Charley with a very satisfied look on his face and a larger bulge around the middle and he began to tell me what delicious hash I left in the ice box," continues the report. "I could not remember making hash and a quick examination disclosed that my poor little dog, Mae West, had lost her dinner." If the report is true, I advise dispatchers to carry a bone when after jobs in Spotweld. Cris Englehart warns to be careful as he heard a growl on passing the department recently.

A late report on Chief Muldoy's Yuletide get together with the Browns', Mucks', Hartmayers', Doers' and Butterfields' makes myself and fellow hillbillies feel slighted that we could not have been there, taken off our shoes and enjoyed some of that mountain hospitality. Jack's pinochle game was the only thing not up to par as a great time was reported by all these old cronies. And to think where I was I had to sit in the back of the room to keep the dancers off my feet as I dislike to wear shoes myself.

Paul "Doc" Willoughby, former dispatcher, dropped in for a visit recently. Paul tells us he is studying to be a veterinarian. To carve a name in the hall of fame, we suggest to find out what's wrong with "Ferdinand the Bull."

Sure good to see Joe Maloney back again at his old post after his trip to Buffalo, fully thawed out, and with lots of news from the east. Joe reports a great time and explains his early arrival was due to his running into a 66-mile windstorm which blew him out of the city and into the next state. "When I landed," says Joe, "I was headed west so just kept on driving."

Lloyd "BB" Bender ("BB" meaning "Both Barrels") is still determined to get revenge on the duck family after his embarrassing mistake of a few weeks past. When questioned why he was sitting by the fountain in the Plaza recently with his "trustty shootin' iron" across his knees, answered "It all stands to reason that a duck must get thirsty sometimes."

Basketball is now in full swing and we must admit those Purchasing lads showed our team something more than pretty panties. This was a case of our being taken to the cleaners instead of those "gorgeous uniforms." The fellows all put up a great fight and Luppke just couldn't stand on all of them at once, as there's a limit to everything, even his feet. Coach Bell is now planning a play where we blackjack the center and muscle in through the middle for a crisp shot.

Using his power as an inspector, Frank Morse, regrettable loss to the prize ring, after returning from a trip to Los Angeles, which required nine quarts of oil, wrote out two reports on his "crate." "Salvage radiator cap and horn and scrap the remainder." He may reconsider however, he says, and sell the engine to Larry Boeing as an accompanist for his singing.

Don't forget fellows that Professors Boeing and Hibert are teaching classes in Blueprint Reading and Metallurgy respectively at the San Diego Night Vocational School. So let's polish up an apple and go down as the classes will be a great help to anyone in Aircraft work. Lou Miller and Ted Anderson could not get a class to teach as the school is offering nothing in "Deep Breathing," "Public Sleeping," "Campusology," or "Oral Penmanship," their major subjects.

No, readers, the Tank Department is not being used for a shower room, as those wet towels lying around are the result of Al

Phone Jackson 9278 Chick Runyon
for "The Blind Man"

VENETIAN BLINDS AND SHADE REPAIRING

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"Drophammer" Ambrose crying over getting a part made for the 31X floats. "It's a racket" says Al, "it cost half a pack of cigarettes to get the job and will probably cost another pack to get the parts made." Since assigned to the drophammer work Al is practicing turning corners so as not to let the new job get him out of stride.

Daniel Boone may have been able to handle bears in his way, but Russ Gaughen, socially prominent "shag" and "swing" lad of Spares can outstep old Bruin in a foot race, according to Eddie Kellogg when interviewed concerning their recent vacation to Yosemite Park. When asked about the ice skating rink there the fellows replied "Gosh, it's swell. We skated on it hours on end."

Those intimate conversations between Craig Clark, Ed Stewart and Dan Miller, are for the purpose of informing the latter on how to go about putting it over on "wifey" to get a night out. Ed and Craig admit nothing has worked so far but hope to strike on something yet that may help the three.

Dick Maving, Final Assmby's ace racquet swinger, don't trust his will power too far but solves the situation by living on the rim of a canyon. "It keeps me temperate," says Dick, "for if I take on too many I know I will stumble over the edge and break my neck." I've had some stuff that made me feel like I wanted to break my neck."

It seems there ain't no justice for us scandal hunters. Just when we believe we had a rare morsel for your ears, it proved upon closer observation that Leo Bourden was not holding Marcella Holzman's hand but merely looking at a ring her youngster had made in school. Shucks, if we could only find Amsley Phillips' or Hank Golem's diary lying around we might have something. Leo might get Marcella's boy to make him another wheelbarrow so he can continue his landscaping.

Well blow me down, it's closing time and we have heard nothing of Roy Coykendall's bowling antics.

January 17, 1939

BASKETBALL SCORES

Hull	.....	26	vs.	Final Assembly	.....	16
Purchasing	.....	19	vs.	Engineering	.....	12
Maintenance	.....	14	vs.	Production	.....	16

STANDINGS

Team	Won	Lost
Hull	.....	2
Purchasing	.....	2
Production	.....	1
Final Assembly	.....	1
Engineering	.....	0
Maintenance	.....	2
	0	2
	0	2

GUN CLUB "X'S" . . .

THE Consolidated Aircraft Corp. Gun Club held its annual business meeting on January 11th at the Stanley Andrews Co. Clubroom. By unanimous vote it was decided that the club officers: Pres. Howard Golem, V.-Pres. H. J. Schnaubelt, Sec.-Treas. H. M. Prior, Executive Officer Henry Golem and Committeeman-at-Large J. H. Waterbury, be retained for the year 1939.

Plans were discussed for shooting activities during the coming year and a very interesting program was selected. The club is growing steadily and promises to be a very live-wire organization. At present

we are arranging some competitive matches with other gun clubs in San Diego and pistol matches with clubs in other cities. We will soon be affiliated with the National Rifle Association which will enable us to compete with every N.R.A. Club in the U. S.

Keen competition is being enjoyed by the members of the club with averages coming up steadily. If any of you fellow *Consolidators* think that you can beat these scores, we welcome you to come out and try it every Wednesday night at the Stanley Andrews Co. range.

H. M. Prior, Sec.-Treas.

AVERAGES FOR MONTH OF DECEMBER

Number of Times Fired	Name	Prone	Kneeling	Offhand	Total
1	Golem, Henry	99	88	82	269
2	Schnaubelt, H.	97	88.5	81.5	267
3	Meyers, H.	99	86	80	265
4	Golem, Howard	98.5	92	69	239.5
5	Prior, H.	99	82	55	236
6	Von Meeden, H.	91	84	59	234
7	Schneider, P.	92.5	78.5	54.5	223.5
8	English, L.	96	58	70	224
9	Weber, L.	91	78	45	214
10	Generas, E.	91	78	43	212
11	Kipkowski, S.	78	73	60	211
12	Soares	86	69.5	51.5	207
13	Koenig, L.	96	68	41	205
14	Koenig, W.	94	48	53.5	195.5
15	Taylor, M.	79	69	28	176
16	Benson, D.	69	53	35.5	157.5
17	Ealy, G.	79.5	58	15	152.5
18	Brown, J.	72	51	22	145
19	Lawrence, H.	70	54	15	139
20	Bauer, H.	68	47	14	129

HIGH INDIVIDUAL AGGREGATE SCORE

Henry Golem 277

HIGH INDIVIDUAL SCORES

	Prone	
Howard Golem	95	H. Meyers
Offhand		Henry Golem
Henry Golem	89	Howard Golem

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SHEET NEWS

Anyone seeking information why W. Borg, of Sheet Dept., has seventeen holes cut in his back door . . . see D. Hightower, No. 1755.

Tramp, tramp, tramp. A measured military step broke the stillness and there stood Capt. Chas. McManus with dispatches from the rear. To the stupefaction of all, one tan and one black shoe adorned his feet. Besides his nightly endeavors to produce gold out of thin air, he had found time to set the spring styles in foot-wear.

Sam Seligman.

SAY YOU SAW IT IN THE CONSOLIDATOR

FROM THE ALBUM

1. (two pictures) . . . "When it comes to building sea-worthy craft, consult Bob Brabban. The wrecking crew from the wood shop put this one together, one Saturday afternoon. They christened it "Beauty," with a quart of Scotch, which was drunk, and the bottle was tossed into the bay. L. McGiffin.
2. The new Rearwin 'plane of the San Diego Flying Club alongside their hangar.
3. *Consolidated* Goats, atop San Jacinto: 10,806 feet. Left to right: B. J. Rowan, T. C. Eckles, F. E. Otto, J. A. Morrow, J. W. Kelly, F. Williamson, M. R. Larceval and D. R. Kern.
4. A snap-shot of the *Consolidated* 60-foot Christmas tree at nite. A "Silver" pine, silverized by Bob Biddle's gang and strung with approximately 1,000 lights by Hank Fink's gang.
5. Fishermen with their catch: Milton Hanger, Ralph Berg, C. Seaderquist, Mac Giffen, Al Johnson . . . the poor fish . . . Bill Marshall, C. M. Szymezak and Otto Bendt.
6. The Sheephead catch of B. Freakley, Geo. Wire, Fred Rosso, and Mr. Baker of North Island.

"Let's Get Associated"

or should we say acquainted

Nicholas and Calloway

"Bud"

"Clayte"

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Selling Aviation Ethyl
"Flying A" Gasolines
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CONSARIANS ABOUT TOWN

By Fink

Bert Rowan was seen moving a small playhouse into his front yard. He claims it is for his "kids," but we think Bert's looking toward the future for it would make an ideal "dog house." Bert can just squeeze in.

"Tex Graham (Drawbench) invited us boys to his house for a little "stag shindig." It was nice of him but those dice of his were unfair to organized "crap shooters." We decided Tex made expenses . . . plus!

"Russ" Grange (Eng. Dept.) spends his spare evenings at S.D.H.S. night classes absorbing a little education. Incidentally, there are quite a number of Consairians in night school classes.

FINISH NEWS

By Max Goldman

OUR new canopy spray booth is finished and is proving a great success. The lighting system is better, and the air circulation sure pulls the paint fumes out!

Alexander took a week off for a Christmas and New Year's holiday, to take a trip up to Portland, Oregon. After staying there for a few days he had to rush back to California as he could not stand the cold weather up there . . . nice boost for our Chamber of Commerce!

Howell was getting jealous of Alexander as he was the first to try out the new booth, so when they brought a hull in, he had his chance, and how he raved about how good the new booth is. He would rather work in there, than spraying the insides of the hulls or center sections. Maybe, someday you'll get your chance, Howell!

Christ. Ortell was sure surprised when he received a check for something he had invented . . . so surprised he was speechless for a while. Try another one, Christ. Maybe that will bring enumerations.

Walt Lawr received an electric train for Christmas . . . how about stopping here for a while with it?

Ross Dilling would like to find some good handicapper at Santa Anita so he could play the ponies there . . . Good luck, someday, Ross!

If your lips would keep from slips,
Five things observe with care:
Of whom you speak, to whom you speak,
And how, and when, and where.
Selected, R. L. Williams, Mach. Shop.



CONSIDER the small cost of complete insurance. Where can you get so much for so little? What other investment as small will give you as great security?

Stock Fire insurance, as a form of protection, stands back of credit and guarantees financial security of your property. It keeps values intact which otherwise fire would destroy.

Let us examine your insurance and arrange a plan for your valuable protection.



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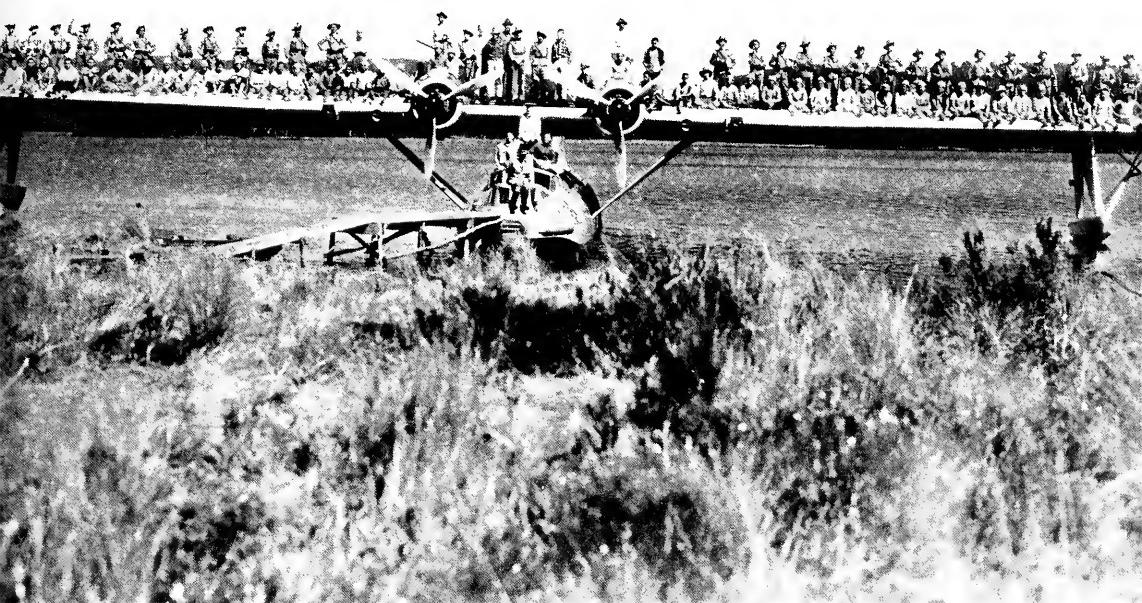
"She walks the waters like
a thing of life
and seems to dare the
elements to strife."

FLIGHT LOG OF THE PBY'S

Date	From San Diego to	Miles	Airplane Miles	Time	Number Airplanes	No. Men
1/28/37	Pearl Harbor	2,553	30,636	21H 43M	12	80
4/13/37	Pearl Harbor	2,553	30,636	21H 21M	12	80
6/21/37	Coco Solo	3,087	37,044	27H 58M	12	84
6/24/37	New York	2,700	2,700	17H 3M	1	6
8/ /37	{ Polar Area	19,000	19,000	....	1	5
9/ /37						
12/ /37	Miami	2,300	2,300	14H 10M	1	8
12/ /37	Coco Solo	3,087	43,218	22H 20M	14	98
1/19/38	Pearl Harbor	2,553	45,954	20H 30M	18	127
2/26/38	Miami	2,300	2,300	12H 35M	1	6
6/ /38	Pearl Harbor	2,553	2,553	18H 7M	1	6
6/ 8/38	{ Pearl Harbor { to Wake Island }	2,300	2,300	16H 45M	1	6
6/ 9/38	{ Wake Island { to Hollandia, }	2,325	2,325	16H 13M	1	6
	{ New Guinea }					
8/31/38	Coco Solo	3,087	43,218	26H 40M	14	98
9/ 7/38	Pearl Harbor	2,553	43,401	17H 17M	17	119
1/11/39	Coco Solo	3,087	148,176	25H 43M	48	336
	TOTAL		455,761		154	1065



CONSOLIDATOR



THE GUBA ON LAKE HABBEMA—1939 ARCHBOLD NEW GUINEA EXPEDITION.

Picture courtesy North Amer. Newspaper Alliance.

MARCH • 1939

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complete protection.

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THE DIFFERENCE

Some men are like the arrow
Upon a weathervane,
And some are like the rudder
That tracks the chartless main.

Some men are like the speaker
Whose voice and thought are heard,
And some are like the echo
That imitates the word.

Some men are like the motor
That drives across the dawn,
And some are like the trailer
That blindly follows on.

Some men are like the player
Whose efforts never flag,
And some are like the caddy
Who stands and holds the bag.

(Clarence Edwin Flynn) Selected.

Gazzoo
MAKES IT
FUN TO BE THIRSTY

OLD FASHIONED
Cream
ROOT BEER 5¢
BIG BOTTLE

CONSOLIDATOR

Volume 4

March, 1939

Number 3

SAVING . . .

IN the primary election March 28 a proposition of great importance to the City of San Diego, large companies like our own, and to individuals like ourselves, will be presented to voters at large for their approval. This proposition concerns the refinancing of the San Dieguito Water System Purchase Contract. The water district included in this contract probably is more familiarly known to you as the Lake Hodges Dam and the supply system which brings the water from this big reservoir to the city.

The city purchased this water system and financed the project on a contract bearing interest at 6 per cent until the obligation is fulfilled in 1955. When this contract was entered into, the interest rate thereon was entirely satisfactory, as business conditions then were extremely prosperous. Later, as we all know too well, there has been a depression and recession and a tremendous accumulation of idle funds on deposit in our banks. With the supply of available money far exceeding the demand, interest rates naturally dropped appreciably. As a result, it is now possible for the City of San Diego to refinance the unpaid balance of the San Dieguito Contract by issuing low interest-bearing bonds at a rate not exceeding 3 per cent. This will effect a saving of more than \$850,000 during the remaining 16 years of the contract.

During times like these, when the tax burden is a matter of great concern to everyone, the San Dieguito proposition presents a splendid opportunity for us as taxpayers to make a very considerable saving.

At a recent meeting of the San Diego Junior Chamber of Commerce, which is sponsoring the movement to refinance the San Dieguito Contract, the proposition met with unanimous approval of city officials, civic leaders, and representatives of labor, fraternal and service groups.

Due to the fact that this question is entirely non-political and non-controversial, it is being presented to you in this manner.

One point has been stressed—that the average taxpayer would be unlikely to approve issuance of bonds because of a rather general belief that to do so would increase the public debt. In this instance, however, the debt already exists, and the plan proposed is a common-sense means of reducing the cost of the debt through refinancing at a lower rate of interest.

Additional details concerning the proposed plan of refinancing may be secured direct from the San Diego Junior Chamber of Commerce, located in the Chamber of Commerce, State at Broadway. The telephone is Main 0124.

VICE-PRES. E. N. GOTTL

Our amiable Vice-President Edgar N. Gott of Washington, D. C., seems to have an affinity for vice-presidencies, since he was recently elected one of the three vice-presidents of the Manufacturers Aircraft Association, which administers cross-licensing patent agreement for the domestic plane manufacturing industry. Now we know why, on his occasional flying trips to the plant that we can manage to squeeze in so little time for an interview. He's just naturally too busy even on his periods of "relaxation"! Well, keep it up, Gott, and congratulations!

To our friend Edgar Gott, from all his many friends here at *Consolidated*, we extend sincere sympathies in learning of the sudden passing of Mrs. Edgar Gott.

ENGINEERS . . .

THE American Institute of Electrical Engineers, incorporated in 1896 now has a San Diego section which was organized officially on January 18th, at a dinner meeting in the Army and Navy Y.M.C.A. Those elected to the Executive Committee of the San Diego Section are: F. F. Evenson, San Diego, Consulting Engineer, Chairman; Walter L. Bryant, Jr. Imperial Irrigation District, Vice-Chairman; C. J. Nevitt, San Diego Consolidated Gas and Electric Co., Sec.-Treas.; D. W.

Proebstel of the Imperial Irrigation District; R. P. Thompson of the Southern California Telephone Co.; E. E. Eiler, Captain U. S. M. C., and H. A. Campbell of the *Consolidated Aircraft Corporation*. The committee holds office until August 1, 1939. The section meets on the third Wednesday evening of each month, at which meetings those interested in electrical engineering are welcome.

At the February meeting Mr. Bradley Cozzens, Junior Research Engineer of the Los Angeles Bureau of Power and Light, spoke on "Design and Characteristics of 287,000-volt Transmission Lines", and Mr. L. A. Zima, General Sales Engineer of the General Cable Corp. showed motion pictures of the manufacture of the Boulder Dam transmission line conductors. Those interested should contact Harry Campbell of Engineering for further information.

THE two "ailments" of air travel: air-sickness and ear trouble, the first caused primarily by nervousness or by sensitiveness to bumpy air and the latter largely thru the effect of rate of change of air pressure on the ear structure, have been found by a recent survey on one of the leading airlines, to be very, very limited. By doubling up on the statistics quoted (just in case the survey might have leaned in favor of flying) it still appears that these two "ailments" of the air occur with far less frequency among air travelers in airline planes, by way of homey comparison, than does that of an "upset" stomach among the earthbound.

Some persons, of course, do encounter air-sickness or ear discomfort in flight, just as some persons become nauseated in riding in a street car or traveling by auto over a bumpy stretch of ground. In early airline days these cases were not infrequent. Modern airline operation however, has reduced these to a minimum. In other words, while there may be a few sensitive individuals who might now be affected, the ventilation, heating, flying altitudes, rate of ascent and descent and the general consideration for the comfort of the passengers has made such encounter very rare for even the most sensitive.

LOWDOWN ON THE LADIES...

By CATHERINE ALICE PHIPPS

Hello, girls!

Lucille Fisher celebrated her fourteenth year with *Consolidated* on February 1. This is an enviable record, Lucille, and all the girls join me in congratulating you.

Dorothy Peterson has reported back for work after her recent illness and we are all happy that she is feeling so much better.

Terry and Lloyd had red faces recently when their names appeared in the last girls' column—sorry, boys!

Kathleen Schneider's sister, Marjorie, announced her engagement at a tea, given in the Schneider home on Saturday, February 11. We all wish you the greatest happiness, Marjorie—and hope that, someday, we may be present at a tea honoring your Golden Anniversary!

In a recent letter, Lois Arnold Snowden sent her regards to all the girls. Lois is in Maryland now and is well and happy.

I saw one of our former fellow-workers, Tess Thorne Reeser at the C.Y.O. dance given on February 4th in the House of Hospitality. Her husband, Lloyd Reeser, furnished the music for the affair and Tess did some very effective song numbers. She asked me to say, "Hello" to all of you—so—"Hello!"

Mrs. Florence Tyner of the Navy Office is in the hospital after having undergone an appendectomy. Hurry up and get well, Florence.

On January 30, we received a pleasant surprise when Magdalen Darr Robinson, a former Navy Office girl, visited the plant.

The big question among the girls is—are claret wine hair rinses going to be popular this season? What do you think, Louise?

The Policeman's Ball was quite largely attended by *Consolidated* personnel. Among the Consoligals seen there were Kathleen, Irma, Lucille and a former fel-

low-worker, Fay Garnet. Ask Kathleen about her "bow" and her "beau"! Also, find out from Irma and Lucille why they had such happy expressions on their faces!

Lucy Shade paid us another noon-time visit recently and revealed that she is knitting another suit. Although we are not the jealous types, we are all slowly turning green at the beautiful knitting so often displayed by Lucy. 'Taint fair! Seriously though, we all enjoy her visits and the only thing that could improve them would be for her to make them more frequent.

Gracie and Kathleen see Margaret McDonough Kendall quite frequently and say that she is doing fine and that the baby is a cute little rascal. I have delayed so long in visiting Margaret that I'm almost afraid to visit her! Shall I throw my hat in first, Margaret?

Marcella Holzman contributed the following little gem to the column—thanks, Marcella:

Say it with flowers,
Say it with sweets,
Say it with kisses,
Say it with eats,
Say it with jewelry,
Say it with drink.
But always be careful
Not to say it with ink!

Now that the Lenten Season has started all of the girls are "giving up" things. Louise, Kathleen and I have a pact not to buy ice cream at noon—did we say anything about *eating* it at noon, girls?! Jean said that she guessed she'd give up potatoes—because they made her fat! She sounds like the little girl who gave up spinach!

"While strolling through the park one day." Ask Mary Nugent about the walk through the park she took with Clara Sacks on Washington's Birthday! Seriously, there isn't anything that will make you feel better than to rise early on a holiday and

walk in the sunlight, breathing in the fresh morning air—isn't that right, Mary? Isn't that what she told you, Clara?

As this column goes to press, Avis Clarke reports that she has overcome all her opponents in the Badminton Tourney—at least up to date. We are rooting for you, Avis, and know that you will be a winner in this event. As for my Badminton, I think the less said of it the better. It isn't the quality of my playing that bothers me, it's the lack of both quality and play-ing!

More next month, girls! Catherine.



Take It Easy!

NOT too much can be said in favor of flying, simply for the pleasure and recreation of it, whether you fly yourself or are of the great majority who go up with a pilot. Without a shade of a doubt it can be stated that a whole multitude of persons are unaware of the sheer pleasure that can be gained from flying or being flown . . . without stunts. In flying that is smoothly and leisurely executed by a good pilot, so that you are not concerned with hanging on, lies the true pleasure that it affords. Under such conditions you have the time to enjoy the full flavor of flying, for the pleasure and recreation comes not with the thrill of stunts, but thru comfortable observation. That's when you begin to pick up the pleasure, and to appreciate that which flying has, in a measure, beyond all others.

Hundreds of thousands of persons have stood on the ground watching planes take-off, and have never ventured into the tenuous air, either with or without a pilot. It appears that these persons, of whom you may be one, have been literally "grounded" by too much emphasis upon the kind of thrill the movies like to employ . . . the bang-up, wild-eyed flying that ends most inevitably in a first grade crack-up. It can only be hoped that some day, and not too long in the coming, these hundreds of thousands will circumvent the built-up bugaboo that is the sensationalism attached to this relatively minor form and step into the big pleasure end of flying.

Once the first shrinking from the fact that you are suspended in the air is overcome, it is of little concern to you from what type of craft you do your flying and observing, whether it be a four-motored dreadnaught or a mere four-cylinder affair. The thrill of looking down at a new angle upon the things most familiar to you will give you that pleasure of observing that has been there all

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along: A perspective viewpoint, a three dimensional view of what you once looked upon and thought was a three dimensional on earth. You now realize how limited has been your viewpoint . . . and how unlimited the possibilities are!

There is a relief from soggy, sultry and glum on the old world's surface. It comes with the coolness of altitude, and things freshen up. Salt fields that are simply water-covered mud of tireful acreage and glaring surface on the ground, become from the air patterned fields disclosing the intricacies of tide washes on the mud bottoms, and the systematic blocking off of the operations arranged by man and carried out by tide and sun. There comes an appreciation of the vast quantity of salt suspended in the brine, ready to be extracted. A huge pile of glistening white is there as proof of the salt held in suspension . . . It's the perspective and open view that flying gives you, a true sense of proportions and values . . . try it sometime from this approach!



About every mechanic who has had some experience knows in a general way at least what is required in the trimming of a plane when one wing has a tendency to fly heavy, but the cream of the crop of questions as to what to do in case of wing-heaviness was, "Yea, I know what you do when one wing is heavy, but what do ya do when they're both heavy?" And the prompt reply was, "Throw out some of the junk in the plane!"



Once There Was a Phrase...

An Englishman visiting America for the first time was greatly impressed by the use of the phrase, "I'll take care of you." He heard it first on the crowded dock soon after landing. "I'll take care of you" a kind officer said, and proceeded to do so. Later it was a smiling porter who said, "Ah'll take care of you, boss," as he picked up the traveler's bags and forced a path thru the noisy crowd to a cab driver. The clerk at the hotel smiled a cordial greeting and said, "I'll take care of you, sir."

During his stay, the man heard these words often, usually followed by some act of service required by the individual's job or position. Always the words brought a feeling of relief, confidence and calm. The visitor continues to remember America pleasantly because some individuals coupled a friendly phrase with their tasks and services. Would it not be wise for us to adopt this phrase in our daily dealings with others? Bill Gilchrist.



The above picture shows Richard Archbold's *Consolidated*-built flying boat, the Guba, resting on the waters of Lake Habbema in the interior of Dutch New Guinea, inland base for the operations being carried on for the American Museum of Natural History. This gives some idea of the topography at the lake which has a surface elevation of 11,500 feet above sea level. The cover picture likewise was taken at Lake Habbema. Those "aboard" the Guba are the expedition leaders, native soldiers, and porters of the expedition who were transported to the lake by the Guba. Recent communications indicate that approximately 450,000 pounds of supplies were transported in the Guba to the lake from the coast base at Hollandia, placing sufficient supplies to last the expedition for some months in advance. Pictures courtesy North American Newspaper Alliance.



Tonawanda Club Reunion

The Tonawanda Club will stage their fifth annual reunion Friday evening, March 10th at Strobel's Bavarian Gardens. A large crowd will be on hand to witness the ceremonies and get-together. The following committee is in charge: Office, Howard Golem; Tool Room, Charlie Tailer; Machine, Jim Patton, Henry Golem and Bob Williams; Welding, Otto Roeckel and Ben Kiegle; Hull, Norm Wire; Tank, Al Ambrose, Arnie Sprenger and Art Hartman; Bench, Gus Johnson and Ernie Roeckel. Reservations must be in by March 3d.



May I take this opportunity to extend thanks from the bottom of my heart to our friends for the many kindnesses shown my father and me in our recent bereavement.—Earl Wesp.

Because he always did his work well and lived his life finely and cleanly, Calvin C. Daman, my friend and pal, will be missed by all his friends and acquaintances. I would like to thank all the janitors and other boys for the flowers they sent in his honor. Because his family is so far away and his death a great personal loss to me, I wish to express my appreciation of their kindness.

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WE welcome to the plant this month, Mr. E. L. Stuhrman, Radio Engineer who was selected by American Export Airlines to supervise the design arrangement, installation and testing of the radio equipment for the American Export Airlines commercial flying boat which is now nearing completion in the plant, and which is to be used in conducting survey flights across the Atlantic this year. Mr. Stuhrman is a graduate electrical engineer of the University of Florida and has had considerable experience in the electrical communication field, having been employed in the Transmission Research Department of the Bell Telephone Laboratories, Radio Engineering department of Eastern Airlines, and with Pan American Airways. Mr. Stuhrman was early a "Ham" radio operator, but long since has replaced his "Ham" rating with commercial C. W. and Phone licenses. In 1935 he did pioneering work in the establishment of the Pan American Airways trans-pacific airline thru the islands, having worked on the radio communication end of the system at Honolulu, Midway, Wake and Guam. He was one of the sixteen who spent some six months erecting and establishing the complete base on Wake Island. Welcome to Consolidated, Mr. Stuhrman.

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WING KEYHOLE

By Browne

Steve Smith came to work recently wearing long-handled underwear. We noticed Smithy scratching all day so curiously, we asked, why? He said this was the first time he had unpacked them since he left Buffalo for Heaven on Earth and he didn't take time to shake all the silverfish out before wearing them.

We now have two members in the Tail Department, Mr. A. Sprenger from the Tank Department and Mr. Seely from the Bench. Welcome, Gents.

Leo Klingenmeier held another card party at St. Augustine school for the school fund. It was one of those old time eastern progressive parties enjoyed by a large attendance. Prizes were given and luncheon served.

Frank O'Connor remarked about the recent wind storm, "A fellow with ears my size should stay inside lest he take off and land in Kern County somewhere."

It looks as though Basketball season is too much for Craig "The Feather Merchant" Clark, the way he has been limping around lately. Everyone has to get old some day "Feamerch"!

John Buchan of Production is quite the radio man. John has built and worked on several types of sets in his spare time. More power to you, John.

If Bill Duncan's bay window gets any larger he won't be able to reach the parts on his bench. Buttermilk diet. "Dunk"!

That groove you see in the floor around the Outer Wings was made by Stephen Powell running around them. The outer wings look like a real job, Steve.

George Washington was a truthful man all right, and we will not try to take any credit away from him, but there were not so many things to fib about in those days: He didn't have to tell how far he went on a gallon of gas, how many days and hours he was going from San Diego, Calif. back to Buffalo, N. Y. How long he had to look and the number of blocks he had to drive around to find a parking place. How many miles an hour he was going when the traffic cop stopped him for speeding. What far away stations he got over his radio; How much he lost on the stock market. How many pounds he lost on his new reducing diet. How high he went up in an airplane: And he never had to make out his income tax! We just wonder how George would have stood the temptations we fellows have nowadays?

Bill Gilchrist.

CORRECTION...

Yessir, it has happened three times now. For each of three successive years it seems that the spray painting of the Christmas tree has been credited to Bob Biddle's crew. The truth of the matter is that on each of the past three occasions, Leonard Herbers of the paint department has done the job. So this is to notify the world that Herbers is the man responsible for the actual spraying. This year some 35 gallons of aluminum varnish were used. Because the job can hardly be accomplished indoors or with the benefits of suction booths to suck off the extra spray, and because it is necessary to brush against much of the tree in the process, plenty of the paint accumulates on Herbers, necessitating on each of the three occasions a complete junking of overalls and shirt.

How is the 60-foot high tree reached all over? Well, partly it can be reached by a bo'sun's chair swung on the outdoor monorails, and the rest by fastening a ladder to the boom of the roustabout crane as an extension for the high spots. In any event it's a man-sized job, for which credit is hereby given to Leonard Herbers.

The printer failed us last month when an announcement of the important arrival of Little Miss Jill Crawford failed to appear after having been submitted. Miss Crawford is the daughter of Mr. and Mrs. Less Crawford, and checked into the world on Dec. 27th, weighing just 9 pounds, 1½ oz. Congratulations.

NO TRICKS, JUST LOGIC

Once upon a time a long time ago there lived a King who had three very wise men for his advisors. Now these men knew that they were very wise and the King knew that they were wise but he did not know which was the wisest. So he resolved to test them. He placed the three of them in a dark room and placed hats on each of their heads. Then he said, "I have placed hats on each of your heads. These hats may be either red or blue. The one that has on the red hat must raise his hand. The first man wearing a red hat to raise his hand will fall heir to my kingdom. If a man with a blue hat should raise his hand he will be banished from the kingdom." The King then turned on the lights revealing that he had placed red hats on all three of the men. After a short wait the smartest of the men raised his hand. How did he know that his hat was red when he could only see the hats on the other men? Why was he so certain?

Answer Elsewhere.

Consarians About Town

By Fink

Many Consolidated employees can be seen spending their week-ends in Southern California's snow-covered mountains. Monroe Jones' (Maint. Dept.) idea of the end of a perfect day is when, after six hours of pleasant skiing, a 70-foot pine tree refuses to move out of the way. He finds it impossible to ski on a broken ski.

Al Blair (Spotwelding Dept.) has quite successfully mastered the art of maintaining equilibrium while skiing over hilly back country mountains.

James Kelly (Tank Dept.) claims he had two "bucks" on a long shot winner at Caliente. Good luck to you, Jimmy.

Joe Striel (Draw Bench) has returned to work after having been laid up with an injured hand. Tough luck, Joe, and may it never happen again.

J. Lockwood (Office) claims he spent a wonderful moonlit evening tobogganing in the Laguna Mountains a few weeks ago.

Red Smillie, after three years of thoughtful, slow deliberation, has finally decided and attempted to polish his car. He is now looking for someone to help him. Are there any "easy" fellows reading this magazine?

Sheet News

By Connie Seaderquist

The boys in the Sheet Metal Department received quite a thrill last week when Joe Merk came "trucking" into the shop one morning wearing an "Irish Green", "Paris Model", Sombrero.

Bill Shirreff has been crying the blues over the loss of a crescent wrench. Finder please return.

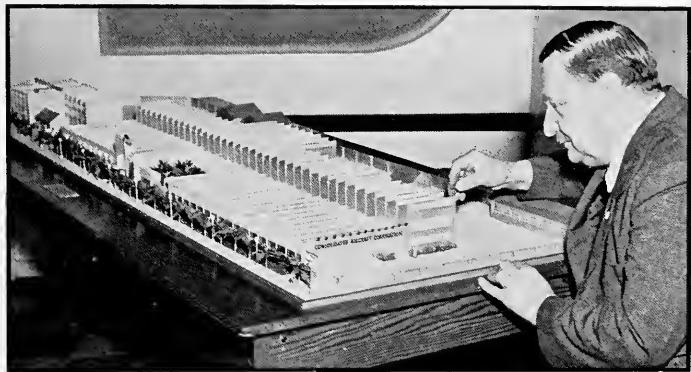
W. Borg has the reputation of offering 20 to 1 odds against a sure thing. For further details see "Connie" Seaderquist.

Terrell, the boy who breaks big pieces into little ones on the "Power Break", accidentally broke a small piece off of "Rasey's" "block" with a haymaker that Joe Louis would be proud to possess. Of course this was all in fun, but if you would like to "Rib-Rasey", he can be found in the Hull Dept.

"Eddy" D'Amico, the sheet metal riveting genius, just can't seem to keep the windows closed. It seems as though "Eddy" has taken quite a distinct liking to this California fresh air, especially on these frosty morns.

Freshman Borg of the sheet department is wearing his little Frosh cap. Maybe the Sophomores are after him? If they aren't, a man with a butterfly net will be! Whooh, Whooh!

Nos. 1737 and 1777.



John Kara putting finishing touches on his model of the *Consolidated Aircraft Corporation* plant as it was arranged for display in the lobby.

Consolidated Exhibit

The fine model of the entire *Consolidated Aircraft Corporation* plant which is the handiwork of John Kara of the Metal Bench department, and which was on display in the lobby of the main entrance, was purchased from Mr. Kara for use in the *Consolidated* exhibit at the San Francisco Exposition. The model in the showcase will occupy the center of the exhibit, with a model of a PBY airplane and a PB2Y from the model shop, together with several mural-sized photographs by Otto Menge completing the attractive display. The *Consolidated* exhibit will occupy the center of a joint exhibit of the three San Diego airplane concerns: The Solar Aircraft Co., the Ryan Aeronautical Co. and *Consolidated*, in the San Diego County display section.

VALENTINE GREETING

Here's hoping that love will warm your hearts,

So that spares can get more parts. . . .

Miss Patricia E. Whelan became the bride of William H. Marchwardt of the Sheet Metal Department, Saturday, Feb. 18th. The ceremony took place at 8:00 p.m. in the quaint St. Francis Chapel which was softly candlelighted and decorated beautifully. The bride was attended by Miss Irene Nagle, maid of honor. Harold Marchwardt served as best man and Haywood Hiller and Don Wilcox were ushers. After a reception on the loggia of the House of Hospitality, the couple left for San Francisco to visit the "World's Fair."

Connie Seaderquist.

If the postman stopped to fight it out with every dog that barks at him he would never get his mail delivered.

Wood Chips

By Bill Weaver

OUR genial financial advisor and boat builder, Bob Brabban, has recently had his good boat, "Sloppy Weather" stolen. After being missed for some days it was again found resting contentedly in its slip. Can it be it may have the old homing instinct and returned in the hope that once again Bob and the boys would sprinkle its noble prow with more of that corkscrew water?

Our Tommy Bell, the sun worshipper from Suncrest has recently out-foxed a pair of beautiful gray fox. Through kind treatment and a milk diet, they have become docile enough to be worn as is. Any of the ladies wishing to wear a neckpiece that can find its own way home, please apply to Tommy.

Ralph Berg, the woodshop Adonis and connoisseur, has been wearing a long face these days, mourning the waste of his appreciation of beauty on old table legs.

Al Rhodes of celestial fame has awarded Major Hoople Brown, the doughnut with the big hole for being the best plumber of the pattern shop.

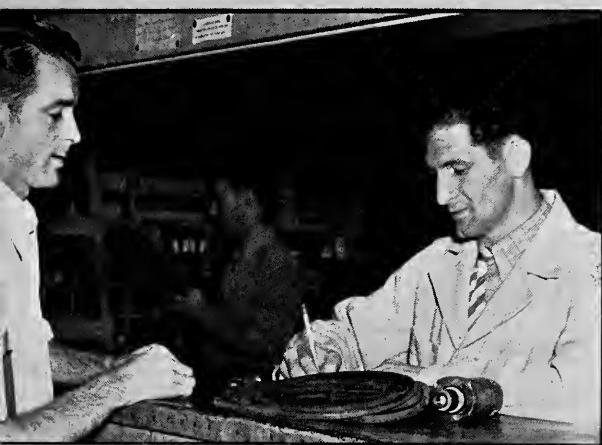
Jack Benkner, the eloquent Republican of the pattern shop has hopes of converting his Democratic opponent McGiffin into the Republican fold. We ask you Jack, must you work on the sweet, tender soul of our Mac?

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TOOLING THE PLANE

By Larry Boeing

OFF in one corner of the General Offices is a group of men working quietly over large drawing tables. Nearby are banks of filing cabinets with their tops banked high with catalogues and reference books. Each man is solving a problem, the results of which will make the fabrication of a finished airplane a simple and easy matter to perform. These problems range from the design of little drill jigs that insure duplication of parts with perfect interchangeability, to large bucks which can accommodate a complete hull during its period of construction.

The designing, building and handling of the huge number of tools necessary to efficiently manufacture modern aircraft assemblies, constitutes one of the most important, if not the foremost, phase of aircraft construction. Before a man can be put to work, or a single item of production planned, everyone concerned with the plane's ultimate constructive phases must know just what tool arrangements will be provided and what procedure and method will be followed.

The Tool Department at *Consolidated* is headed by Phil Koenig, a veteran at not only Aircraft Tooling practice, but a machinist and tool maker with years of experience both in practical and executive capacities. He is ably assisted by Charles Taylor who heads the Tool Room, J. W. Van Doren, who has charge of Tool Design, Earl Sheehan in charge of Riveting equipment, and Earl Wesp who handles the Wood, Pattern and Model Departments. Each of these men in turn are specialists in their own line and when the group comes together to discuss a method of handling a new job it isn't long before they have things worked out to everyone's satisfaction.

Anything one uses to simplify the job he is doing, is classified as a tool. Man soon found that little could be done by hand alone, and soon applied little principles he learned from observation. The lever, the wheel and later the screw, were all used

The "Big Four" of the Tool Department (above): Charles Taylor, Earl Wesp, J. A. Van Doren, listening to Phil Koenig give his views on the design of a large assembly fixture. Below: Harold Hauptman, Tool Crib Chief, charging out an electric drill to Wilbur Cullison of the Sheet Dept. Henry Morgan, inventorying tools, is in the background.

to aid early man in his efforts to live. These things are still being used to help air-crafters do their job, although their simple principles are seldom recognized.

The Tool Department takes every means and every known useful item available to design and build arrangements whereby the rapid manufacture and assembly of duplicate parts may be easily accomplished. These arrangements may be large bucks to build wings, hulls or surfaces in their entirety, or may be small drill jigs, form blocks, blanking or piercing dies, small hand tools and hundreds of similar articles. They may be made up of wood or metal and not infrequently a combination of the two is used.

To do this job requires skilled men, and equipment whose valuation runs into hundreds of thousands of dollars. Precision machine tools constitute the major portion of the Tool manufacturing equipment and all are necessary to do an efficient job. Among these are an imported Swiss Jig Borer, vertical and horizontal milling machines, shapers and many others.

The wood shop is equiped to handle pattern work, assembly tables and model building, and when a mock-up of a new design is being constructed, this department is called upon to assist. In cooperation with the tool room the pattern makers and woodworkers often combine forces in completing many types of tools.

Tooling up for the production of an airplane model brings in the usual battlefield of engineering problems: that is, the arrival at the best possible compromise between conflicting factors. Tools must be highly accurate and save as much unnecessary work as possible . . . yet they must not cost much because they probably will be used only for a relatively few units of production. One die could be made to blank, pierce, form and trim a certain part in remarkable short order, but its cost against perhaps hand making, may prohibit the tool being made. Its usefulness is too limited. On the other hand there are occasions when a blanking die is the best solution.

In some instances wood forms are easily made and satisfactory for a small number of parts for hand forming, a greater number of parts and the wood would be hammered to pieces and worthless. Steel or cast-iron for the same form requires a casting with, of course, labor spent on a pattern,

machining, and fitting to the desired shape much in excess of that for the wood form.

The utilization of the large amount of necessary trim stock and waste aluminum alloy from plant operations was once a problem of disposal. Now it is melted up and cast into slabs and blocks and many of the form tools are made from it instead of wood. It is re-enforced on sharp edges with steel strips. The cast dural tool stands up for far more parts than wood, and is only slightly more costly in labor in the making . . . but considerably less expensive than cast iron or steel.

Innumerable special cutters for the machine shop, reamers, countersinks, spot-facers, backspotfacers, drill, shaper and nibbling templates, drill attachments, angular drills, broach adaptors, milling head adaptors, adjustable countersinks, fly-cutters, boring bars, tube bending rolls and followers, flanging tools, edge and bead rolls, tapping tools, clip bending tools, brake bars and dies, special snap gauges, special clamps, collets, burring tools, punches dies. And tools to form, crimp, joggle, offset, trim, perforate the materials used in the completed airplane, as well as large fixtures, jigs and special hand tools; are all designed and constructed as required.

Very little time elapses between the release of the engineering drawings and the time in which the tools are desired, because the go-ahead is given the shop to produce the parts at almost the same time the engineering prints are released. Tool design must take each engineering print and check every detail part of that print for the necessary tools, design them, pass the design drawings on to the tool room for making and decide what assembly fixtures must be built, and they must also decide whether a part can be made on the standard machine tools of the plant. Besides designing and building special tools to make up the smaller units, the department is constantly developing machine tools especially adaptable to aircraft manufacturing problems.

Rivet squeezers and riveting guns are used extensively throughout the plant and it's the Tool Department's job to maintain a central crib where the equipment is stored and serviced. This is a small part of the work connected with these items when one considers the fact that they are of little use unless proper jaws are designed for each job about the ship. The maintenance and repair of these several hundred pieces of valuable equipment as well as the problem of designing the special jaws and adaptors is left to Earl Sheehan whose department is a model of orderly efficiency.

One of the most important functions

of the Tool Department is the assigning of completed jigs and tools to the man who will build the job. Along with these items are hundreds of different types of materials used in the shop to complete the job which are seldom considered, but whose cost can run quite high. These items may be abrasives, like emery cloth, sandpaper and grinding wheels, or supplies like oils, greases, chalk, marine glue, soap powder, scotch tape, wire and hundreds of others. In charge of distributing and controlling this all-important work is Harold Hauptman. He is the first man the new employee meets when starting in, and from then on his problem is to keep track of the man's tools and see that they are properly cared for and returned. He is in charge of the many tool cribs about the shop and his headquarters is the Main Tool Crib, where all records are kept both numerically and alphabetically in order that tools can be readily located.

This main tool crib in the center of the plant acts as a distributing center for the smaller department cribs. There are eight cribs, and a tool and die storage warehouse. These cribs are located in or near each department with the following men in charge:

Bench Dept., David Pearce.
Experimental, Renwick Carson.
Hull, Marvin Moest.
Machine Shop, Robert Carson.
Tool Room, Kenneth Sullivan.
Wing No. 1, Frank Wallace.
Wing No. 2, Vincent Gilmore.
Main Tool Crib, Hank Morgan.

Tool and Die Storage, Harold Fletcher, Don Pearce, O. Johnson, John Donohue.

Each of the smaller cribs carry a complete supply of tools needed by their department, and they are serviced by the main crib which carries surplus stock and keeps them supplied at all times. Included in this stock are such standard items as:

Drills, taps, reamers, end mills, dies, tap wrenches, die stock, files, counterbores, letters and figures, emery wheels, goggles, tool bits, countersinks, angle drills, milling cutters, slitting saws, drill chucks, electric drills, grinders, shears, extension lights, mallets, clamps, tapping machines, sandpaper, emery cloth, hammer handles, oils, greases, all kinds of brushes, steel wool, chalk, compounds, welding supplies, gloves, etc.

In short, the task of tooling up for a new airplane, keeping track of these tools of a special nature, together with the vast array of standard tools that supplement them, is easily seen as no small function in the building of our modern airplanes.

HULLABALOO

By Hep

WE hear that "Dutch" Klein has joined "the Royal Order of Horse Betters." His only fault is that when he bets on a horse it doesn't win and when he doesn't bet on the horse it does win.

"Ronnie" Miller has a new nickname. Maybe you've heard it. It's "Pinkie." One look at that "shredded wheat" on his upper lip and you'll know where he got it.

"Russ" Kern claims he spent two weeks in January with the National Guard. However it was rumored that he was to be married about that time. I wish this matter could be cleared up once and for all. "How about it, Russ?"

"Al" Clark claims that someday he'll beat "Scotty" Doig in a game of golf. "Your only chance that I can see, Al, is to outlive him."

On Saturday morning, January 21st, nine *Consolidators*, namely, E. Lang, R. Malcuit, N. Tuevsky, T. Gascoigne, J. Hopman, B. Rowan, T. Powers, and "Pinkie" Miller, left for Mason's Valley for the week-end to hunt rabbits and have a good time in general. It was raining when they started and snowing when they passed through Julian.

On arriving at their destination, as brave as they are, they pitched their tent in an old barn, due to the inclement weather. Soon the boys were eating a dinner of steak and beans, spare parts and delivery dates forgotten for the moment.

Unfortunately the weather continued to be damp and dark, so the rabbits were not molested. As the shades of night started to fall, some of the boys' minds began to wander to the little wifey dear, gazing into the fire, listening to the hit parade, so majority ruling, they started for home.

It wasn't much before midnight when the boys settled into their warm beds after battling such elements as being stuck in the sand, snowstorms, trailer hitch breaking, running out of gas and to cap the climax by plowing up the neighbor's flower bed. However their left-over canned goods are packed and waiting for the sunshine to signal another attempt for a trip to the great out doors.

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FRANKLIN 5-233



TRANSPORTATION

Planning Department to determine when parts will be ready for movement. Lumber and supplies necessary are requisitioned, and after inspection the parts are packed for shipment. By that time, the Traffic Department has been contacted, and a procedure has been decided upon with due respect to classification, rates, sizes of boxes, required packing sheets, markings and routing instructions. Freight charges are based on weight, measurement and value, and are fixed by classification, rates, routing and rules which are published in books called tariffs, all of which are subject to approval by the Interstate Commerce Commission, and/or State Commissions, and/or the United States Maritime Commission. Improper classification or description of the article, and evasion of the rules of the tariffs, subject the shipper or carrier to heavy fines or imprisonment or both, so it is unwise to make shipments without a comprehensive knowledge of the laws governing the movement of freight. Large sums of money annually are lost in damage and improper rating and routing because many companies do not have a traffic department which can study and know the problems peculiar to its own industry. Discrimination, unintentional or otherwise, places a burden on the uninformed, and it is the work of a traffic department to bring these cases to the attention of those involved, and by presenting facts and rulings, proper adjustments are usually obtained.

Traffic Management is a broad subject, and while much could be said, it is not the intention of the writer to bore the reader with the technicalities of transportation.

Many people who came from Buffalo will recall that day after day box cars were loaded with machinery, materials, parts, tools, and even household furniture, and personal effects, not to be seen again until arrival in San Diego. Considerable planning to accomplish this was required. In fact, unknown to many, action began January, 1935, to obtain special emergency rail rates to cover the shipment of plant equipment and household furniture. In July favorable rates were approved by the Interstate Commerce Commission which were substantially less than the then present rates and contributed a large saving in freight cost. The movement of the plant began in July and continued through August. Fifty of the largest freight cars were required for the plant equipment, and twenty-three cars for

household furniture and personal effects. The entire movement was covered by insurance against damage, and while some damage occurred, it was all adjusted by claims which were filed against the insurance company and the railroads by the Traffic Department.

Since raw materials and parts used in the construction of airplanes substantially originate in the east, it was necessary to anticipate requirements and allow sufficient time for transit. Aluminum Alloy sheet, angles, tubing and rods are purchased in large quantities, and whenever possible, are shipped from the east in carloads. Nearly all of the sheet is produced at Alcoa, Tenn., while the rods and wire are made in Massena, N. Y. Angles and tubing originate at New Kensington, Pa. Since the carload rate is cheaper than the less than carload rate, a car partially loaded is started at Massena, the most eastern point, and moved to New Kensington, Pa., where loading is completed for movement to San Diego. This is called "Stopping in transit" for which the railroads assess a charge of \$6.93 per car. However, this charge is insignificant since a carload rating of \$1.93 per cwt. on a 30,000 lb. or more load is charged instead of the LCL (less than carload) rate of \$3.38 and \$3.08 respectively on the portion out of each point.

For example, if 50,000 lbs. were being shipped from each point, a freight saving of \$383.07 is effected by moving a "stop-off" car. Hundreds of dollars are thus saved by planning the movement and applying a proper routing. Similarly a plan was accomplished with the Aluminum Company to load cars of sheet out of Alcoa which contained sheet stock for *Consolidated Aircraft Corporation* and other companies to the north of us. The car is routed through the south and stopped for partial unloading at our plant, and then proceeds to other plants in the Los Angeles area, or San Francisco, or Seattle. The same procedure is followed when shipments of steel or machinery are to be made from the east.

In addition to receiving carload shipments of freight, approximately 75,000 lbs. of material and supplies are received in small shipments during the average month. The majority of it is routed via a carloading company which accumulates the LCL shipments from most eastern points, and then moves it in carload shipments from centralized points such as

"WHAT large boxes they are, and you say they contain flying boats going to the Argentine? Why, all those mammoth boxes on that boat make it look top heavy, and I doubt they will ever get there," said a spectator one day in August, 1937, when the P2Y3A's were being loaded on a McCormick boat at San Diego. Perhaps many have had the same thought, and wondered where the material came from to make such large planes and parts, which are shipped or flown to the far corners of the world.

Coordination of knowledge and effort of the Purchasing Department personnel under the direction of Mr. Leigh, daily solves problems of procuring materials so that production is not held up, and airplanes and parts safely arrive at the point designated by the customer. In accordance with the approved type of organization, the *Consolidated Aircraft Corporation*'s Purchasing Department takes in the Traffic Department, Follow-up Department, Receiving Department and Shipping Department, as well as Material Control, Raw Stock, Purchased Parts Stocks, etc. Eddie Jones, in addition to other duties, with his assistant, Frank Cary, supervises the Receiving and Shipping Departments. Frank Field holds the position of Shipping Clerk; Fred Rosso, Receiving Clerk, and Bill Spaulding is in charge of the packers and carpenters who build the shipping boxes.

Upon receipt of sales orders, the Shipping Department begins plans for preparation of the shipment, working with the

By HOWARD G. GOLEM

*Assistant Material Supervisor and
Traffic Manager*

Chicago and New York. These cars are then unloaded at Los Angeles, for example, and the contents are split up and trucked to other nearby cities where delivery is made direct to the door of the consignee at a rate which is less, in many cases, than the LCL rail rate.

During 1938, \$35,848.34 was paid for freight; \$27,136.40 to railroads and car-loading companies; \$4,626.75 to the Railway Express Agency, and \$4,085.19 to steamship lines. Of this amount \$10,335.82 was charged back to shippers. In addition to the above, thousands of dollars were paid by shippers on freight received by Consolidated.

Approximately two weeks are required for time in transit from eastern points, so it was found practical and wise for the Traffic Department and the Follow-up Department to work as one unit. Milton Taylor, Assistant Traffic Manager, is responsible for the timely delivery of articles which are purchased, and he works very closely with the Planning Department to eliminate delay in production. A considerable quantity of correspondence passes to and from his desk, and with his knowledge of traffic management he is able to select the proper routing and method of shipment, giving full consideration to Production's requirements, and cost of transportation. He audits freight bills to see that the classification and rates are in order before payment is made, and also files claims for loss or damage and over-charges which might have been inadvertently assessed on shipments by the carriers. Taylor sees that supplements to the many tariffs are properly filed and watches for rate and classification changes, as well as new rulings and decisions which might affect the movement of our freight, either inbound or outbound.

When time permits, freight is moved to and from our plant by water carriers. Generally the freight cost on these shipments is substantially less than the same movement routed by truck or rail. Heavy objects moved by water are, however, assessed a heavy lift charge which is added to the regular rate for that description of freight. Other items which must be added to the water cost are trucking or rail to and from

the harbor, wharfage charges, marine insurance premiums, loading charges and handling charges. Therefore, in some cases, water movement is not advantageous, particularly when the item moved might be susceptible to damage by additional handling and corrosion by moisture. Next May a 4,500-ton capacity hydraulic press will be shipped from Birdsboro, Pa., to our plant. It will weigh approximately 590,000 lbs., and require about nine large flat cars for movement. Since Birdsboro is only 49 miles from Philadelphia, it will probably move by rail and water if production in the plant can spare three weeks more time in transit than straight rail transit time. Shipment overland by all rail would cost about \$11,199.54, while rail and water cost would be about \$8,783.60 or \$2,514.94 less than rail. From preliminary plans submitted by the manufacturer, several of the major parts will weigh 80,000 lbs. each upon which heavy lift charges are assessed by the water carriers. For example, the rail-water rate would be 19c per cwt. rail to Philadelphia, \$1.10 per cwt. machinery rate by water, heavy lift 55c per cwt. plus marine insurance premiums of 27½c per \$100.00 valuation, and other costs such as wharfage, switching or trucking.

Capacities of ships' equipment and size of hatches, as well as Harbor facilities must also be checked to determine whether or not such large and heavy objects can be handled from the ship to the dock, and/or to the trucks or rail cars for final movement to destination.

With respect to sizes of shipments, it might be interesting to note that PBY type boats boxed, cannot be shipped to Puerto Belgrano, Argentine Navy Base, via Buenos Aires because the flat cars are too small and the railroad clearances are not great enough. It would, therefore, be necessary to unpack at Buenos Aires or pay the steamship company a special fee to go off their regular course and call at the Navy Docks at Puerto Belgrano. A similar condition applies to the Russian shipments which were made in 1938. Due to war conditions in Mediterranean Sea, some of the Russian shipments were routed via Antwerp through the North Sea, then north of Norway to Barents Sea to a Russian port where the large boxes were loaded on flat cars and moved south to Moscow and south again to Taganrog which is in the southern part of Russia near the Sea of Azov. To accomplish this, it was necessary to remove the sides, tops and ends of the hull boxes so that the shipment would not be damaged or knocked from the Russian flat cars.

Movement in certain sections of the United States presents the same hazard. The Russian shipment mentioned above, which consisted of three large boxes supported by three 50-foot flat cars, was routed from San Diego to Los Angeles harbor by way of San Bernardino. This was necessary because of sharp curves in the roadbed just this side of Los Angeles. The 60-foot hull box on the middle 50-foot flat car extended 5 feet over each end of the car, and when the tracks curved, the projecting ends would extend outward away from the center line of the tracks. The loading was carefully checked by the Santa Fe Railway officials, and it was determined that there would be approximately 4 inches clearance, so it was finally accepted for movement. Fortunately, the load did not shift nor the wind blow a telephone pole toward the tracks, and the shipment safely arrived at destination. Because of its size, prohibiting movement through certain tunnels and bridges, the original PBY type boat, built in Buffalo, was shipped on flat cars from Buffalo west into Ohio, thence south and east through Deepwater, Va., to Norfolk, Va., where it was set up and flown to Anacostia, D. C.

Many more shipments to and from our plant each have their own interesting features, both in planning and handling. 140 carloads of wing panels and parts have been received from Bell Aircraft on which the freight cost was reduced \$72.00 per car. The same is true of the float shipments from Brewster Aeronautical, and other shipments.

In addition to consideration of interdepartmental relations, the duties of the Purchasing and Shipping Personnel have been planned and synchronized to cope with conditions existing in companies outside of our plant over which the management has no definite control. Efficiency and economy are largely dependent upon knowledge and the application of that knowledge in a smoothly functioning unit, and with this in mind, departments have been set up to handle all details assigned to it.

Fred Rosso, Receiving Clerk, checks each shipment against its accompanying freight bill or delivery slip. The number of packages, weight of each, and description must agree. Should damage be apparent, a notation of exception is made on the receipt which he signs for the delivering carrier. Should the contents be damaged, the traffic office is informed, and a claim is instituted. Receiving reports are made, and after making other records, the shipment is inspected and stored.

Frank Field, Shipping Clerk, efficiently

handles a mass of detail required to prepare packing sheets, applications for Navy route orders, Government Bills of Lading, domestic Bills of Lading, delivery slips, express ladings, and other documents. After consulting the Traffic Department, he classifies the freight being shipped, and sees that the material or parts are properly boxed and packed. His colored tag system—the stubs of which support the packing sheets—insures the arrival of the correct parts at the proper destination.

Bill Spaulding with his carpenters and packers, has a very good record for construction of boxes which will "take it." He knows what is required and is entirely familiar with Army and Navy specifications. Bill can look at a blue print of the parts before they are built and pretty well tell just what size box will be required, and how much it will cost. When racking parts in a box car, every inch of space is utilized, and after Bill says "ok," we know the contents will be received in good order at destination. One day several months ago, three flat cars were loaded with 42-foot boxes containing spare parts for export. In transit to Los Angeles, one of the cars with our parts was derailed along with several other cars in the train. Although the load was severely jolted, movement to destination was authorized, and the parts were found to be undamaged. This is significant of the quality of packing.

Bob Combe and his men with their tractors and cranes are often called upon to load and unload freight cars or trucks, and large and heavy objects are moved safely to their appropriate places. The other day a large box weighing 3,700 lbs., approximately, was received by Railway Express, and while it was small in comparison to hull boxes 60 feet long, weighing 28,000 pounds, the problem of how to get the box from the baggage car presented itself. The Express Company was requested to have the baggage car spotted on our tracks, since they had no adequate equipment to remove the box. Bob Combe and his men were called upon, and in less than 30 minutes from the time the baggage car was placed on our tracks, the heavy box, which was nearly as wide as the baggage car, was unloaded. "Swede" handles that new electric lift truck like an engineer runs his locomotive.

This article would not be complete without a word about Art Lamb, who in addition to driving the company truck or cars, serves as local pick-up man, buying commercial items from San Diego shops. Mechanically inclined, he keeps the cars and truck in good order, occasionally adding an item to improve the equipment. He is

a competent, likeable fellow, and efficiently operates our local transportation equipment.

Space does not permit the recording of additional innumerable interesting phases and incidents of traffic management or shipping. Transportation is still in its infancy; for instance, airplane transportation has unknown possibilities. While traffic management affecting the aircraft industry, in the past was almost entirely ignored, the time is fast approaching when it will be of vital importance to the survival of the industry in its foreign field. Maritime shipping subsidies by our government and other governments play an important part in the cost of delivering airplanes to foreign countries, since the freight cost to move them to foreign ports is an important figure, ranging from a few hundred dollars for small airplanes to ten and fifteen thousand dollars for larger airplanes. Legislation affecting the railroads, truckers, steamship lines, and air transports, affects the shipper, receiver and consumer.

In 1935 *Consolidated* was one of the first aircraft companies to recognize the importance of traffic management, and after arriving on the west coast, the writer approached one of the larger aircraft companies north of us, pointing out that the movement of freight to and from the aircraft companies deserved consideration, and that the rate structure on aircraft materials and parts should be revised downward. Early in 1938 the Aircraft Traffic Association was organized to attack the problems confronting all the aircraft industry on the west coast. Companies which had no traffic department are now convinced that vast savings had been overlooked and their export departments are also now making use of the information and the assistance which the Association offers to all of its members. Needless to say, actually thousands of dollars have already been saved.

It is hoped that the information contained herein will give you a more comprehensive understanding of the words "traffic management," "shipping" and "transportation," and while the surface has only been scratched, should one or more individuals in a position to do so, be awoken to the possibilities of a career in this field, the writer will feel fully rewarded for the time and effort expended. Then too, several years ago a gentleman asked the writer's wife what was the nature of her husband's work, and when she replied he was a traffic manager, the gentleman said, "Oh, does he supervise the parking of all those automobiles at the plant?"



THE battle for the Corsair bowling championship is nearing its final stages at the Sunshine Alleys with six of the ten teams valiantly fighting for championship honors. While the other four still have a chance to come out on top—the odds favor the present leaders.

The Production team composed of E. B. Liddle, H. Muck, J. E. Wilkinson, Tom Jones, Roy Coykenhall and Arnold Sprenger are at present ensconced in the driver's seat with the Wing team, made up of Jack Edwards, "Army" Armstrong, Julius DeGinlo, Leo V. Danner and Steve Smith hot on their trail with only the slimmest of margins separating them.

The Tube Benders and Experimental teams are still in the running being only six or seven points behind the leaders. It is anybody's victory from now on.

No one has succeeded in displacing the high scores turned in sometime ago by Steve Smith and Jack Edwards who went on a scoring rampage about Christmas time. The versatile keglers from the Wing team set up total series scores of 630 and 629 which bid fair to remain high for the season.

It's funny what a drink in the offing will do for some keglers—there's Roy Schultz of the Maintenance team 'frinstance. Prior to Chet & Ione offering a free drink for a 200 or over game Roy was rarely in the nineties. But with the drink offer once made, Roy has come through with a winning game nearly every week of play.

E. B. Liddle, lead-off man for the high-pressure Production team recently injured an ankle while playing basketball. He has been replaced by H. Muck who will essay a little pinch-hitting until the former's ankle mends.

"Ball" Galley was introduced to the league about the middle of February having been given a berth with the Experimental club. Galley does a lot of practicing on the side and ought to develop into a point winner for his club.

Carl Heim of the Machine Shop may well boast of his newly acquired but complimentary title "King of the Chair-Duck Keglers." Heim has demonstrated his superiority over the city's finest chair duck bowlers. He has yet to lose a contest. The

The author always wanted to clear up that point in the questioner's mind.

game was invented by the laziest kegler in the world and is especially designed for the tired business man as well as the proponents of the sit-down strikers.

Michael Brooks, according to paper records is Consair's most able and consistent kegler. Mike has a 176 average to top the field. Arnold Sprenger is rated second with 174 and Steve Smith third with 172. Irving Craig enjoys fourth honors with an average of 170 and fifth, but still formidable, is Jack Edwards with 169.

The Wing team still holds undisputable high game and series honors according to the Board of Merit maintained by the local ABC. The Wings have posted a 950 for high game and 2698 for the three game route. These scores are exclusive of handicap.

Several Consair keglers have signed up for membership in the Sunshine Alley's 240 Club. J. E. Wilkinson, J. E. Edwards, Steve Smith, Carl Heim, Roy Schultz and Gene Tibbs are among those who will receive special recognition and consideration if they ever tally a game of 240 or over at the Sunshine. It was just too bad that Mike Brooks and Leo Danner didn't sign up prior to Feb. 11th as on that date Danner pegged a slick 250 and Brooks copped a 246.

Leave it to T. J. "Father" Coughlin to organize a bowling league. The Consair Engineer circuit is the most evenly matched league assembled at the Sunshine in over a decade. Four teams, the Hull, Equipment, General and Armaments are tied for first place with 19 points won and 17 lost. The Loft and Power quints bring up the rear with 16 won and 20 lost by each team. Flip a coin and you have the champs.

The rumor that Night Super Emerick has given up bowling has been definitely spiked. He appears quite frequently in the early afternoons and manages to get in his daily dozen behind closed doors. And observers see a big improvement in his game.

Consair league standing as of Feb. 18th:

<i>Consair League</i>	<i>Won</i>	<i>Lost</i>
Production	46	26
Wing	40	32
Experimental	38	34
Tube Benders	37	35
Machine Shop	37	35
Hull No. 2	36	36
Sheet Metal	36	36
Hull No. 1	32	40
Maintenance	30	42
Final Assembly	28	44
<i>Engineers</i>		
Hull	19	17
Equipment	19	17
General	19	17
Armament	19	17
Loft	16	20
Power	16	20

San Diego Flying Club

SOARING NEWS

By Jerry K. Litell

AT the last meeting of the Associated Glider Clubs, we learned that our Association has a fair chance to obtain Government aid so that we can help train some of the 20,000 new pilots.

America is taking a tip from the European countries who have long since seen the economy of subsidizing gliding and flying clubs as a means of keeping a reserve of pilot material on hand. This will give U. S. a wider field of selection for military pilots and, as in France, the reserve officers will take advanced soaring time to improve their flying and learn the use of updrafts to gain altitude in combat.

In order to have a suitable training program perfected by fall the club will buy a modern two-place sailplane. Judging from the interest shown, the ship will be financed mostly by "Consolidated" employees, and should be here by the time this is read. Two-place sailplanes of American make can be counted on one hand. None are in production and only one has an A. T. C. But they will certainly be needed, so here is an opportunity for some far-sighted manufacturer.

The ship under consideration is the German "Grunau", the most widely used two-place trainer in the world. This will give every club member a chance at dual soaring under a competent instructor. The club already has two licensed instructors and three more who can qualify immediately, even under the new regulations. So, this summer, San Diego should have 25 new soaring pilots with the highest rating in the N. A. A., deserving the better ships that Uncle Sam will give them.



EXPERIMENTAL NEWS

Fred Caster was out riding early Sunday morning Feb. 17th and he met two polar bears on their way to San Diego. The Chamber of Commerce had better get a fence around this place.

For the first time this season the Experimental bowling team is getting interested in the prizes given for 1st place . . . I wonder why?

Tom Bunch tells everyone he has sworn off "Tobacco" . . . if you know what I mean!

Eddie Klenner received a X-mas box, this late in the season, from his Palsy-walsy, Otto!

Experimental's bowling team carries 6 men on it. If Ed Hanzlik is bowling well, one man has to go for his Grand Pa!

No. 8027.

Leo Bourdon claims the story printed about his throwing the anchor overboard without a rope attached, was a good story and undoubtedly it had to be pinned on someone; but he admits another: It seems he took down the door to his garage so that he could cut in it a smaller door for the use of his dog. When he took it down he discovered that someone had broken into the garage and taken his rubber-tired wheelbarrow with which he has been doing considerable landscaping. That burned Leo, plenty. So much in fact, that when Leo completed the special entrance for his dog, he found he had cut it in the top of the door! It is now transformed into a window.

DRIFTING THRU DRAFTING

By Bouley

Take the case of young Lutz,
With whom Dan Cupid's in cahoots,
For on Thursday, March 2,
He will murmur "I do!"
And on Friday we'll smoke the cheroots.

AFTER several weeks of experiment on a vegetable diet (with occasional eggs and oysters), and after inquiring into the price of retreats, Bob Lutz is finally convinced that two *can* live as cheaply as one. As a consequence, he will soon have a new beneficiary for his insurance policy in the person of Mrs. Robert Jackson Lutz, now Miss Mary Elizabeth Reps. His departure brings a feeling of mingled joy and regret to his cronies at the Albatross Street boarding house, for they must find a new person upon whom to shower their advice. On the other hand, they will find relief in spending no more nights sleeping on mothballs beneath the sheets and no longer finding their bathwater strongly tinctured with turpentine.

Speaking of insurance policies, the "Aetna will get you if you don't watch out" slogan was passed unheeded by Jimmy Syren until too late, and he now finds himself engaged to Miss Harriet Wolcott, who happens to be a daughter of our w.k. friend Paul Wolcott. We hear that Don Wheat is also steering an erratic course that may land him on the rocks of matrimony.

Probably the most sensational vital statistics of the month, however, was supplied by Oscar William Moerschel, that famous bachelor, envy of the married men, et al. After being given the third degree and subjected to several mediaeval methods of torture Bud finally admitted late in February that nuptials had descended upon him one day in Yuma. In his confusion Bud kissed the bride far too early in the ceremony and then had to do it all over again at the proper time. But anyway, the former Miss Hazel Bailey is now Mrs. Moerschel.

Turning from symptoms to effects we observe that the stork, storm-ridden and battered by heavy gales, decided to drop

a useful load item as he passed over San Diego. The result was the delivery of another son, Edward, to the Linderfelt home. A girl had been ordered but the mistake was evidently caused by rain on the stork's glasses. At any rate Hal is still the envy of Eddie Cantor and Howard Macdonald.

"Well, well," ask our readers, "what is the cause of all this flurry of activity in the Veils and Wails Department?" Ever in accordance with our policy of eagerly supplying the strict truth in all matters, our operatives have located the source of the trouble in the person of Gene Holston. A short time ago Gene became interested in archery and made himself a bow and a quiver of arrows. As he grew more proficient at the pastime it was only natural that he should seek to become Dan Cupid's representative in this district. If his present accuracy holds out it should be only a matter of time now until Ken Whitney, Dutch Altgilbers and Clarence Gerber are clicked in the cardiac by darts a la Holston.

Henry Mandolf is reputed to have obtained his blush from skiing in the mountains but we hear that it was caused by an incident involving the family black cat. A small neighbor boy reported the cat run over the other night and Henry and wife went out to inspect the corpse. They identified it as their cat and Mrs. Mandolf asked Henry to bury it. Henry was reading a technical article on the selectivity of the oboe so he said that he would do it later. Midnight came and Henry got the pick and shovel and started the interment in the hard ground beside the canyon road. The echoes aroused first neighbors and finally suspicions and soon he was having to explain to prowler car officers that it was not a wife or child but a cat he was hiding away. After various and sundry embarrassments he completed the task and started for home. As he entered the house and started to raid the ice-box what should strut across his path with tail erect but the Mandolf black cat! Henry is still looking for someone to sue.

Oh yes, in closing we are glad to see that the maintenance department has installed the low-hanging paper towel racks in the lavatory as requested by Herb Gill, Erv Watts and Gil Payton.

LINDBERGH FIELD CAFE

Administration Building

Lindbergh Field

"The Home of Aviation"

TUBING DEPARTMENT

Bert Freakley was home for a week resting due to a back injury he received while he was fishing. From the information we have received, Bert slipped on the boat and while trying to regain his balance twisted and threw some vertebrae out of place. We are all wondering what story Bert will have when he comes back. He may tell us the fish was so big that he strained his back trying to land him . . . we wonder!

We have just discovered a new name for a couple of the boys, who will understand: Cloud Flegal has been named "Lucky," Clyde Hammett's new name is "Boot."

Slim Franklin is thinking very strongly about going fishing these week ends. I sincerely hope he gets another boat, so he will be sure of getting back before 7:30 Monday mornings.

Herman Deischl is still figuring on that Automatic grape crusher of his!

Danny Whorton, No. 2813.

FINISH NEWS

By Al Griffith

TOMMY GASCOIGNE of the covering department spends his week-ends collecting honey, or shall we say, getting stung. He says it was worth it. He got 50 pounds of honey.

Bob Wood of covering, is building a 24-foot boat for fishing, powered with a new Studebaker engine. Maybe we can go fishing. I hope Butterfield can go, as you should see that boy cast!

J. L. (Benny) Leonard was found deep in a mineral problem in his laboratory, and later found out it was only a chunk of concrete.

"Madam" Bibbs, of the upholstery department, says the only reason you don't hear anything of his department is everything goes on so smooth.

Orv (Wrong Way) Hubbard, in the doping department, is starting a class in navigation for the boys. Say, he sure took a long trip to get a Mexican costume for the dance!

Joe (Gardenia) Wickstrom of covering is taking a home study course in landscaping and is trying it out at home . . . says he has nothing to lose.

Born to Mr. and Mrs. H. R. Linderfelt on February 7th at the Mercy Hospital, young Mr. Edward Neal Linderfelt who checked in at 8½ pounds. . . Congratulations.

CONSOLIDATED PHILOSOPHY

The smallest actual good is better than the most magnificent promise of impossibilities.

Don't be a fault-finding grouch; when you feel like finding fault with somebody or something, stop for a moment and think; there is very apt to be something wrong with yourself. Don't permit yourself to show temper, and always remember that when you are in the right you can afford to keep your temper, and when you are in the wrong you cannot afford to loose it.

The old adage "You can't teach an old dog new tricks" isn't even true for dogs, and its application to people is absurd.

Opportunity is rare, and the wise man will never let it go by him.

The most profitable criticism is self-criticism.

Quality is never an accident. It is always the result of intelligent effort. There must be the will to produce a superior thing.

To know how to suggest is the great art of teaching.

A retentive memory is a good thing, but the ability to forget is the true token of greatness.

If you wish for success in life, make perseverance your bosom friend, experience your wise counsellor, caution your elder brother, and hope your guardian genius.

D. R. K.

Born to Mr. and Mrs. John Stark of the Covering Department, a 6 pound, 13 oz. baby girl on January 21st. The name, Miss Gail Evans Stark. Congratulations to all.

All the many friends of Calvin C. Damon express their sympathy in his recent passing. Interment was at the Ft. Rosecrans Cemetery on Point Loma.

SOLUTION OF "NO TRICKS, JUST LOGIC"

The key for this will be found in that the fact the wise men knew that they were very wise. Now number one the man that held up his hand could see but two red hats, but he knew that if he had worn a blue hat number two would immediately have held up his hand as number two would know that if number three could see two blue hats he would hold up his hand. Since neither two or three had held up their hand and since he knew that they were wise enough to figure either of the contingencies that might have arisen he was sure that he must also have on a Red hat.

LANDPLANE, SEAPLANE . . .

FEW persons realize the outstanding difference in structural requirements of a basic nature, between those of a landplane and those of a seaplane or flying boat. This probably is because few persons have been fortunate enough to witness a seaplane undergoing rough water tests . . . a highly interesting spectacle of flying boat being given a real working over . . . a proofing test conducted at sea, generally in inclement weather, greatly exaggerating any conditions the plane will be put to in actual service . . . to test just how much "intestinal fortitude" is wrapped up in the new design.

While it is designed to take tough loadings as everyone knows, the landplane nevertheless is designed for, and accustomed to, landing on an airport of reasonable smoothness. It is not designed for landing on, and definitely not designed for landing into, a mountainside . . . not with any degree of alacrity at least. The flying boat, while probably it will not be called upon throughout its entire life to alight upon "fields" other than those as relatively smooth as those of the landcraft, nevertheless is designed to take a wham-banging into mountains of water, and a rough water test is a thorough proof of its ability to take just such treatment.

In these tests the plane does not have the normal advantage of easing down onto the surface of the water by encountering it at a very slight angle. There are waves and groundswells to contend with, and these become mountainous in both substance and feel, as the speed of the flying boat increases. The landings and takeoffs must of course be made into the wind, and nature generally arranges for the wind to cross and augment the action of the swells and waves. At the very moment of landing, a touch on the far stern of a boat on the crest of one wave may have the

tendency of forcing the boat to plow its nose with the full force of its momentum into the next coming swell.

In our normal encounter with water we are apt to feel that it will yield the right-of-way to our inclinations with little resistance. And this it does, but as the speed with which we wish to push it aside increases, so does its tenacity for remaining "as is." The inertia of a small drop of water to the speeding vanes of a steam turbine will shatter the steel blades, so violent does this action become at very high speeds. Thus, but to a lesser extent than that of the turbine blades traveling at perhaps 400 miles per hour, the landing seaplane in the particularly severe rough water testing of its worthiness, takes what might be likened to a slide down a full flight of stairs on the seat of the trousers. Several sound smacks of solid water on the hull are to be expected before the plane can make a take-off during one of these tests, and a similar number as it again comes to rest. The rough water test proves the flying boat fully capable of a tilt with open water at its most cantankerous, ready to take normally rough conditions with the greatest ease.

The essential difference between the land and sea craft in basic structural requirement is that the landplane has its landing loads somewhat conveniently concentrated in the three points of the landing gear, and normally receives the loads through these points only. A seaplane, however, is apt to have the full brunt of a blow in manoeuvring on rough water, delivered to it from almost any quarter, highly loading that particular vicinity and throwing, likely as not, a strong wrenching twist to the whole hull and structure. The seaplane just naturally has to be tough all over, the landplane in concentrated spots.

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BADMINTON

Consolidated's first official "Bird Chaser" competition held on 15 February, attracted more than fifty participants, whose friendly competitive spirit, enthusiasm and cooperation made the first round a success.

Matches were held in all but the mixed doubles events which will be the last to be scheduled.

There were many fine games in both veteran and novice events.

The committee contemplates including a "Consolation" round in future tournaments to allow those eliminated more than one opportunity to win. Future tournaments will also feature a "Seeded" list to be based on results of this competition.

The committee wishes to thank all who appeared for the cooperation and good spirit which prevailed.

Special thanks are due Mr. Gilchrist whose interest and assistance are largely responsible for the promotion and success of our tournament.

WHY DOES...

Al (Baba) Ballard have a woman's changeable mind with that mustache of his? Once it is, once it isn't.

Steve Powell always salute everyone he knows?

Roy Coykendall think he can bowl a 238 game when it's hard for him to roll 138?

Red Kimball work on his teeth so much with the chewing gum? . . . it seems Red came from such cold town that his teeth were always chattering, so, to absorb the shock, he chews gum.

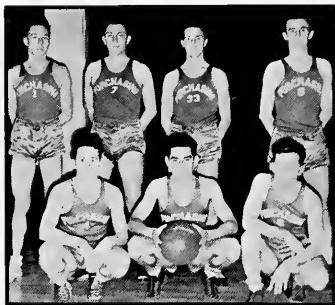
Steve Smith gloat so over the score he and his teammates rolled the other week . . . 682 total for five men, with Steve the high man with 145!

Hank Golem think that he can compete with Clark Gable in having a fancy trailer?

H. Haupman promise to play golf and at the last minute refuse to go out and get a low score of 69 +?

S. Matusek promise boat rides for three years, and fail to do so?

Eddie Raymond.



Left to Right—Top—Bob Passemheim, Paul Gaughen, Russ Gaughen, Vincent Gilmore. Bottom—Buster Snow, Roy Larceval, George Gandeec.

Purchasing Department's Red Devils Basketball Team, making its opening bid for the championship of the second round of the Consolidated Basketball League, defeated the strong defensive Production Quintet 28 to 10. Throughout the first three quarters of the game the Red Devils were held in check by the green panty lads of Production. But, the fourth quarter, the Red Devils turned on the heat, so hot, that the green panty lads' unsuccessful attempts to turn off the heat, made their coach's eyes burn with rage. (Can you picture Ed Stuart in a rage?)

Eddie Jones, who is camera shy, coaches the Red Devils and is doing an excellent job. The fellows on the team would like to take this opportunity to thank Eddie for giving his time to coaching the team and hope to make him a present of the second round championship.

Beware Final Assembly, Engineering, and Hull, the Red Devils are getting too hot to handle.

RIFLE COACH APPOINTED

Mr. Douglas McDougal, Production Engineering, has accepted the appointment of coach for the Consolidated Aircraft Gun Club. McDougal is a graduate of the Small Arms Firing School of the national matches at Camp Perry. He has a National Rifle Association instructor's certificate and also holds a certificate from the Marine Corps Small Arms Firing School.

As noted in another article of this issue, "Mac" was high scorer with 286 in the recent match of the Consolidated Gun Club with the Silver Gate Rifle Club. Incidentally, McDougal holds the record for the best score shot on the Consolidated range at Stanley Andrews.

Unquestionably, McDougal is well qualified for this position and his coaching will improve the scores of the Consolidated Gun Club shooters. Howard Golem.

COUGHLIN'S COUGHINS

THE Engineers held their monthly Golf Tournament at the Rancho Santa Fe Golf Course on Saturday, Feb. 11, 1939, and it was a grand success.

This tournament was a qualifying round of golf for match play, and the winners of the tournament at Rancho Santa Fe are listed below:

FIRST FLIGHT

1st Low Net, Coughlin	73
2nd Low Net, Moe	74
3rd Low Net, Ekrem, Ring	79
Low Gross, Sheahan	88
Low Putts, Bourque	33
Kickers' Handicap, Farnsworth	79

SECOND FLIGHT

1st Low Net, Freil	76
2nd Low Net, Schwarz	77
3rd Low Net, Waller	79
4th Low Net, Stephens	81
Low Gross, May, Smeltzer	106
Low Putts, McGuiness, Bender	33
Kickers' Handicap, Weber	84

THIRD FLIGHT

1st Low Net, Goddard	66
2nd Low Net, Lutz	71
3rd Low Net, Dormoy	79
4th Low Net, Winters	79
5th Low Net, Palsulich	80
Low Gross, Eldred, Rosenbaum	112
Low Putts, Mohr	33
Kickers' Handicap, Carroll	83

The winners of the golf tournament held at the San Diego Country Club in December, 1938, are listed below:

FIRST FLIGHT

1st Low Net, Bourque	72
2nd Low Net, Hemphill	73
3rd Low Net, Coughlin	75
4th Low Net, Miller	77
Low Gross, Sheahan	86

SECOND FLIGHT

1st Low Net, McGuiness	72
2nd Low Net, Friel	73
3rd Low Net, Bauer	77
4th Low Net, Weber, Kelley, Carlson	79
Low Gross, Schwarz	103

THIRD FLIGHT

1st Low Net, Dolan	70
2nd Low Net, Hinckley	74
3rd Low Net, Achterkirchen	76
4th Low Net, Taber	76
Low Gross, Rosenbaum	107

ENGINEERS BOWLING LEAGUE

Did you ever hear or see a league standing in any bowling league as listed below?

	Won	Lost
1—Hull	19	17
2—Armament	19	17
3—General	19	17
4—Equipment	19	17
5—Loft	16	20
6—Power Plant	16	20

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... PRODUCTION MINUTES

By BRADSHAW

THE highlight of the social calendar for the month was the swell dance sponsored by Tommy Butterfield and his San Diego Flying Club buddies at Sunny-side a few nights back. After watching some of those "birds" doing their stuff, we decided you don't need a plane to stunt, but to go into a tailspin on a dance floor is bad. There seemed to be plenty of fuel to keep everyone in the air and outside of a few minor crackups and one point landings, it was a humdinger of a get-together. We left at a late hour when most of the guests were gliding and the return trip was blind flying. It was a "hard times" affair and one time that I wore my best clothes without feeling that unusual inferiority complex. Great stuff fellows and let's have many more of 'em.

Difficulties are still encountered and overcome by that master ship builder "Popeye" Hibert whose staunch and seaworthy craft is destined to control the La Jolla shores. The laborer who cleaned out the garage and reversed ends with the boat caused "Chuck" to reconstruct what he believed to be the front end which, with two prows, now gives the vessel the appearance of two PBY's in a tug of war. Using his spare tire to furnish air for his spray gun caused himself and fellow riders some difficulty in getting a flat fixed the other night. The only tools found in the car were a shovel and a short length of rubber hose, a great help when out of gas on a quiet street. Soon, however, he will be sailing in with the other tires serving as life preservers and the shovel for bailing out. "Chuck" is offering a free ride for a suitable name for the boat in case one can be found that the wife has not already used.

A warning to you dispatchers to keep on your toes as Chief Mulroy, after dropping that waist line down some several cubic inches, is not as easy to see as before and much faster on his feet. It's going to mean a new wardrobe for Jack, however, if he wants to keep the slack out of his pants. We suggest a copyright on the formula as plenty of the "beef trust" around town are ready to pay for the right dope. George Young contends, however, that Jack is not near as happy and that the sad look on his face when someone opens a beer is unbearable.

The Production basketball team had a tough break when Bill Liddle, as good a forward on the court as he is a tackle in the parlor, suffered an ankle fracture during the game with Purchasing. When

you notice the sympathy he is getting from the young ladies, you feel like breaking both your own legs. Old dependable Lloyd Bender is also right there ready to push him around from place to place. Bill says he had quite a struggle with himself trying to decide whether to stay away and draw compensation or come back where he could smoke Ray Hartmeyer's cigarettes.

If Charley Tailer shows up one of these mornings looking like an escape from a cyclone, you can assume that he has encountered a pal's wife waiting up for Charley to bring dear hubby home. Drop them off on the corner, Charley, and keep the motor running as we need you around the tool room.

Eliminate that fourth quarter and the Production basketball team will have a chance for some wins in the league. The fellows just cannot "poosch 'em up" enough in the final frame and get nosed out. Kirby, Clark, Matusek, Liddle, Anderson, Luppke, Aiken and Deitzer, are all playing bangup ball and sure threw a scare into the favorite Hull quintet before bowing 11 to 8. The doctors report Glenn Hotchkiss is recuperating from his nervous breakdown and when he can realize his summer vacation and beer money is safe his heart action will revert to normal and he will be good as new. I can sympathize with Glenn, as I had quite a few bucks on U.S.C. in the Rose Bowl.

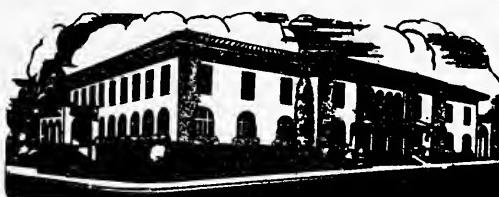
Jim Eiseman doesn't mind being accused of stealing Ben Keigle's lunch but proclaims innocence of breaking the thermos bottle. "That slavery model, fugitive from a wrecking yard, he drives, shakes his bottle to pieces," says Jim, "and then after I have a bit of lunch he blames me for breaking it." Jim maintains it's all for Ben's sake as he is getting too thick around the middle and should be on a diet anyway.

We were wrong about those being "fog glasses" Bob Morse wore to see getting out of La Jolla in the morning. They are to protect his eyes from flying bits of loose automobile in the "La Jolla to Consolidated" handicap race to beat the morning whistle. "There they come, here they be, there they go" say the roadside inhabitants as they begin to descend from the safety of the trees and housetops after the "Hell Drivers" roar by with Boeing leading, Henniger second coming up; Blume holding third; Morse taking Drowne on the turn and Hiebert holding on with his feet pushed through the floor boards. Remember, "Chuck", what the wife said about riding with that "wildman" Boeing.

When Paul Gaughen asks for a bit of celophane to repair a leak in his cigarette, Joe Maloney deduces that payday is near. Someone should remind Paul of the good "pickin'" from the can in the hallway. A little "sand in the craw" is good for digestion and you can always find the brand you use.

"That 'Jungle rhythm' coupled with drop hammer and air drills, finally accomplished the complete brain collapse of Boeing and Von Meeden in the cage" tearfully relates Ed Stewart. Chief Thompson now has it locked up with the lads looking out and it would take the nerve of a Frank Buck to enter. There is a warning not to stand too close or throw too many peanuts as Boeing is overweight now. On special occasions. Larry is led down to "Cecil's Grill" in La Jolla where he entertains the town folks.

Coykendall and Jones finally poured out their hearts and told us the secret of the Production bowlers' winning streak that has them sitting on top of the heap. One big glass before the game, they say, steadies the nerves, sharpens the eye and gives them so much confidence that those stubborn pins just roll over and give up. With Liddle injured, they are now debating whether it should be two glasses or let Springer and Wilkinson in on the secret.



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MORTUARY

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That rabbit's foot Ted Anderson uses at those little sociable games still produces "buck fever" instead of "rabbit fever" and the fellows have decided it better to "ante up" before the game and send him to a show. Connie Seaderquist has a substitute from a black cat's hind leg, dyed, and ready to exchange for Ted's charm when the opportunity affords.

Unless an advance calendar for 1940 is supplied, those words of wisdom of Philosopher Russ Kern "saga of the Inspection Department," that inspires his fellowman toward greater heights will expire about May.

Art Sugs, Tank Department Inspector informs us that he will do his fishing this season in the Department Test Tank. "You need a lamp to get a sunburn anyway" says Art. "I never catch anything in the surf, so why go out and get wet and sandy."

Jeff Bouley's comment in his very good column "Drifting Through Drafting" about that "Ghost writer" business was kinda nasty. The "ghost" gets the credit and get the h—. Tain't fair Jeff, as it takes me a long time to copy this stuff out of those joke books and anyway, I fill in the names.

Charles Wegner's wife presented him with a bouncing boy on Saturday, January 28th. Congratulations, Charley, from the Leading Edge Gang, and may all your troubles be little ones.

We learn that Arne Vinje, of Engineering, and his wife drove to the theatre recently, walked home and then reported their car stolen the next A.M. It would be a good idea for this couple to hold hands while out together for if they ever separated the "Missing Person's Bureau" would probably get a report from each of them.

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Chief Mulroy didn't know "the little yellow basket" was lost until he read about it in the last issue but he must have gone after it as the darn thing has been found and everybody's happy. Bob Morse can't figure it out as he is still looking for a center section that disappeared three weeks ago.

Paul Hoch informs us that Johnny Kester, Mayor of Mission Beach, believes in making use of his new auto. Besides serving as excellent sleeping quarters, we learn Johnny plans on putting a stove and shower in the back, giving up his house and making it a permanent residence. This "gypsy's" address will now be a license number somewhere on the highway between the plant and Mission Beach.

"Father" Tom Coughlin and Mack McGuiness wish to send out an appeal to Sam Snead, the West Virginia hillbilly golfer, to start hitting them down the fairway again for the sake of "Farny" Farnsworth. Since Snead started his losing streak "Farny" has lost most of the hair on his head and upper lip as well as wearing out his vest with his chin.



ABUNDANT WEALTH

Here's a tip that might serve to replenish the much depleted church treasuries. At least it worked in the little "cullahed" church in the south. The collections had fallen off to an extent that the pastor was obliged to go hungry part of the time. One Sunday morning he decided to make a short address before the plate was passed.

"Ah doan wan' no man to gib mo' dan his share, bredderen," he said, gently, "but we mus' all gib accordin' to what we rightly has. Ah say 'rightly has,' bredderen, 'cause we doan want no tainted money in dis box. Squire Jones tol' me dat he don miss some chickens dis week. Now, if eny ob our bredderen hab fallen by de wayside in connection wif dem chickens, let him stay his han' from de box. Deacon Smiff, please pass de box wile Ah watches de signs an' see if anybody in dis congregation needs me to wrastle in prayer fo' 'im."



Two darkies were discussing their neighborhood banker . . .

"Dey say he's kinda tight," said one.

"Tight nothing!" says the other. "Dat man's as lib'l as dey makes 'em. He loaned me five dollars two years ago, and he ain' neveh ast fo' it yet! Eb'ry Sat'day I goes 'roun' an pays 'n two bits in trust, and he say foh me not to worry 'bout no principal. No Suh! Dat banker shuah am white!"

Bill Gilchrist.

SOME DATES IN AVIATION

1785—Jean P. Blanchard of France and Dr. John Jeffries, an American, crossed the English channel by balloon.

1857—Jean-Marie Le Bris, first man to make a flight in a heavier-than-air craft, by means of a glider drawn by a horse.

1861—T. S. C. Lowe reported a Civil War battle from a captive balloon.

1863—De La Landelle of France, coined the word "Aviation."

1901—Santos-Dumont piloted his balloon or semi-dirigible around the Eiffel Tower, winning 129,000 francs in prizes.

1903—The Wright Brothers flew their power-driven airplane. First flight, Orville at the controls; duration 12 seconds.

1909—Louis Bleriot flew the English channel.

1911—The first seaplane flight became a reality, Glenn H. Curtiss from San Diego Bay.

1923—*Consolidated Aircraft Corporation* formed.

1924—Night flying inaugurated on transcontinental airmail service.

1927—Charles A. Lindbergh flight from New York to Paris.

1929—First blind landing made under a hood by Major J. H. Doolittle.

1932—First blind landing solo, Capt. A. F. Hegenberger.

1934—First successful massed flight from San Francisco to Hawaii. Six *Consolidated P2Y-1* planes of the U. S. Navy.

1935—*Consolidated Aircraft Corporation* moves from Buffalo, N. Y. to San Diego, Calif.

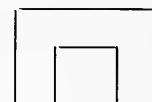
1937—12 PBYs make first non-stop formation flight from San Diego to Hawaii.

1937—First transcontinental flying boat flight, San Diego to New York by Richard Archbold in *Consolidated PBY*.



Here is a good puzzle from Weihmiller in Washington . . .

Shown are the conventional top view and front elevation of a solid. Draw the side elevation.



GUN CLUB "X's"

THE Consolidated Aircraft Gun Club is now officially affiliated with the National Rifle Association and eligible to compete in all N. R. A. registered shoots.

On Feb. 6th we fired a 3-position match at the Stanley Andrews Co. range, against the Silvergate Rifle Club of San Diego. Although we did not expect to out-shoot this highly experienced group of small bore rifle shooters, we were greatly surprised and pleased to come within 31 points of beating them. Their total for the 5 high shooters was 1404 against our total of 1367. Our club did, however, enjoy the honor of having the highest individual score. D. C. McDougal of Production Engineering topped all scores with an individual high score of 286. The team scores were as follows:

SILVERGATE RIFLE CLUB	
Brotzman	277
Lutz	278
Woods	284
Kanagy	280
Smith	285
Total	1,404

CONSOLIDATED RIFLE CLUB	
McDougal	286
Meyers	272
Waterbury	271
Kallis	270
Golem, Howard	268
Total	1,367

On February 15th we fired a pistol match with the Twin City Rifle and Gun Club of North Tonawanda, New York. The results are not known as yet, due to the fact that our targets were sent to our opponents for scoring while they in turn sent us theirs for the same purpose. The Club individual scores for the month of January again show a splendid increase in percentage and are as follows:

H. M. Prior, Sec.

Name	No. of Times Fired	Prone	Kneeling	Offhand	Total
1. McDougal, D.	2	94.5	92	87.5	274
2. Meyers, H.	2	99.5	90	83.5	273
3. Waterbury, J.	2	98	89.5	85.5	273
4. Golem, Howard	2	95.5	90	85	270.5
5. Schnaubelt, H.	4	97.5	88	84	269.5
6. Golem, Henry	2	96.5	93.5	75.5	265.5
7. Prior, H.	3	99.5	84.5	78.5	262.5
8. Kallis, F.	1	95	91	74	260
9. Schneider, P.	3	91.5	87	64.5	243
10. Kipkowski, S.	3	92	81	67	240
11. Soares	1	88	81	63	232
12. Von Meeden, H.	1	95	75	60	230
13. Weber, L.	2	89.5	79.5	52	221
14. Koenig, L.	2	95	68.5	43.5	207
15. Burce	1	75	79	37	191
16. Benson, D.	3	73	60	55	188
17. Koenig, W.	1	98	37	41	176
18. Lawrence, H.	2	72	60	30	162
19. Bauer, L.	2	68	58	28	154

High Individual aggregate score—McDougal—280.

High Individual scores—Prone: H. Prior—100 (2); H. Meyers—100.

Kneeling: Henry Golem—95.

Offhand: H. Schnaubelt—93.

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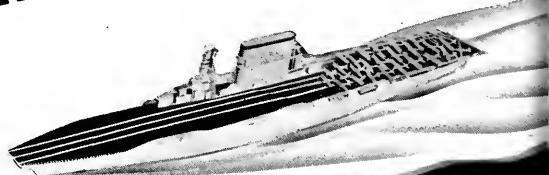
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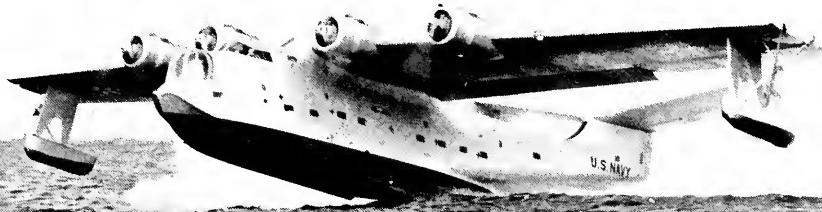


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CONSOLIDATOR

Volume 4

April, 1939

Number 4

REASON FOR EXISTENCE

OUR reporter, Ed Gott, has forwarded to us a clipping of about two columns, from the New York Times, in which the first half plus the titles, is devoted to one of the patrol bombers participating in the Fleet problems. The story is going the rounds and apparently thru a purely inadvertent arrangement, has demonstrated forcibly the *raison d'être* for the PBVs.

The writer of the article, Harwood Hull, attests that there is more talk about this incident than in any other single incident that has come to light since the completion of the Navy's Problem XX. He describes the action as at least approaching the heroic in this mimic warfare.

It seems that the big patrol plane had orders to locate the attacking White fleet and spy out its course. The plane left its port near San Juan, P. R., and headed into the east, climbing to about 15,000 feet altitude. In due time the plane and its crew located the attacking fleet far out at sea. High above, it followed in the wake of the Admiral's ship, hour on hour. It was neither molested by the enemy nor detected by the umpires, and continued to dog the attacking fleet, reporting back to its base the movements of the White Fleet.

Apparently the plane was not forgotten, but for some reason not explained it was not relieved, nor did its crew get an order recalling it. The hours wore on as it continued its post nearly three miles up. Darkness came and still the plane kept watching the fleet below. Daylight came, and still the plane kept to its task.

After more than thirty hours of continuous flying the plane came back to its base and reported. It had been in the air a longer time than was required in the non-stop flight from San Diego to Coco Solo in the Canal Zone, and arrived at the base with only fumes in its tanks and it had probably flown, if its course could have been measured, more than the 3,087 miles of that flight.

Much to the surprise of the plane commander on his return, was the question asked as to where he had been.

To this he quoted his orders, since he had been sent on a mission and had stuck to it at 15,000 feet in the air, continually dogging the White Fleet and watching until he had barely enough gas for his return flight.

The pilot and his crew are shrouded in anonymity, but the plane was one belonging to Wing 1, and the incident is being cited as demonstrating, inadvertent though it may have been, the value of the air service for hemisphere defense and the possibilities of greater range at sea, of planes operating from an advance base.

While there may be no official record involved, still when all the facts are checked, it is possible this plane's tour of duty may set a new mark for sustained operation in mimic warfare.



North American Aviation through Dean Phillips, Athletic Manager, expressed the thanks and appreciation for the reception given their basketball team, when they came to San Diego. He extends an invitation to the basketball team to come up to Inglewood next season for a return game. We'll look forward to it!



We reprint from the Ocean Beach News, the following item about one of our fellow employees:

"Leo Niemet of 4856 Long Branch Ave. has the commendable hobby of making numerous kites and distributing them free to children of his neighborhood. He spends much of his spare time constructing the toys for all of those who want them, and he has given away as many as 25 in one day.

An Ocean Beach resident for three years, Niemet has five children of his own and says of his spare time work, "I just enjoy seeing children happy, and they seem to like kites, so I make as many as I have time to and give them away."

His largest and best kite, he says, was a seven and one-half foot cellophane affair created last season. He doesn't know how many more kites he will make, but remarks, "The kite season has just started."

AERONAUTICAL I. Q.

Credit yourself with 10 for each question answered correctly.

Answers will be found on page 16.

1. Who discovered the process for the commercial production of Aluminum in the U. S.?

2. What is the name of the acute angle between the transverse reference line in the wing surface and the lateral axis of the airplane projected on a plane perpendicular to the longitudinal axis?

3. What is an auxiliary member or structure called whose primary function is to reduce head resistance or drag of the part to which it is fitted?

4. What chemical is used in anodizing dural?

5. Give the temperature range used to heat treat 24S Dural.

6. What is the curve of an airfoil section called?

7. Name the instrument used for indicating the speed of an airplane relative to the air.

8. What is the chemical composition of Duralumin?

9. A cylindrical tube with an open end pointed upstream so that the air meets the instrument head on or is met head on by the instrument is named what?

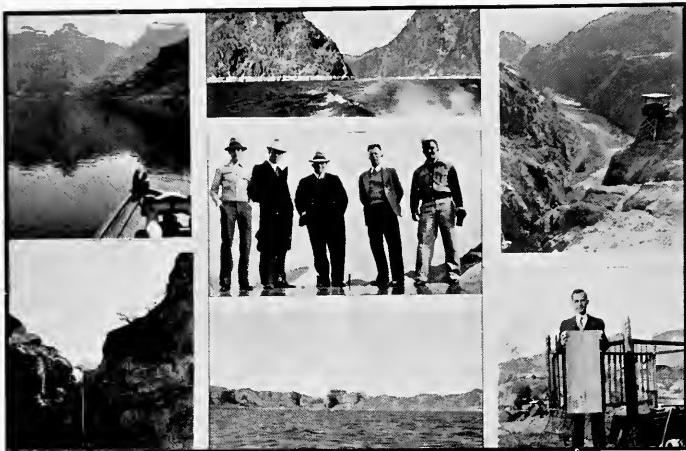
10. What is the term used in flying when one climbs for a short time at an angle greater than that which can be maintained in steady flight?



He entered our editor's sanctum. "Please insert this advertisement: \$50 reward to any person who will return a black Persian cat to—" The editor, interrupting: "Excuse me, but isn't that a big sum for a cat?" "It was my wife's cat," he replied. "Still—" said our editor. "You see," interrupted the man, "I drowned the damn thing."



Born to Mr. and Mrs. Gordon Duncan, a girl who weighed in at just 6 pounds. Arriving on March 16th, she now is going by the name of Miss Patricia Lynne. Congratulations.



Upper left, a view of Lake Mead. Center, upper, site originally chosen for the dam but found to be volcanic rock that was porous and unsuitable. The white band shows the former water level and is 20 feet high. Right, upper, view downstream from the dam. Seven turbines were discharging at the time. The downstream has been stocked with trout. Left, lower, a small waterfall pouring water into Lake Mead. Center, E. Stuhman, "Bill" Wheatley, "Mike" Doyle, Jack Kline and Gene Tibbs. Lower, center, the cathedral, a formation with vertical walls. The wall-face has fallen into the lake in the last three months giving the appearance as seen in the photo. Lower, right, Stuhman exhibits a wooden tombstone. The tough paint preserved the wood, while the remainder eroded away some 3/16 of an inch. This was found at the old silver mine which is now abandoned.

FLIGHT TO LAKE MEAD . . .

By Jack Kline

(NCI 1897, the American Export Airlines CONSOLIDATED flying boat which will be used as a survey plane on the Atlantic Ocean, was flown to Lake Mead on March 3rd by Bill Wheatley, with Jack Kline as First Officer and co-pilot, and with Mike Doyle and Gene Tibbs as Flight Engineers. Ed Stuhman was radio operator.—Ed.)

"At 11:05 we took off and climbed up through the clouds to an altitude of 11,500 feet holding a magnetic course of almost exactly North (360°). The true course is about 30° , but with approximately 16° easterly variation, and a strong northwest wind, our heading took us right to Boulder City and Lake Mead, which we reached in an hour and forty minutes. We circled for a few minutes to look over the mooring facilities and get our wind direction before landing.

"Mooring facilities, motor boat and automobile transportation, and hotel accommodations were all provided by Grand Canyon-Boulder Dam Tours, Inc., of Boulder City, Nevada, which not only runs the Boulder City Hotel, but also operates the small boats on the lake, and the "for hire" automobiles. We were most fortunate in having Joe Messick, formerly pilot on the Grand Canyon Airways, as our guide and the one to whom we made our requests, which he somehow or other seemed able to get instant and completely satisfactory action on.

"Lake Mead is approximately 115 miles in length, with 550 miles of shoreline. At present the lake level is slightly more than 1100 feet above sealevel, but will normally be over 1200 feet when filled. (The runoff from snow now in the mountains is

expected to fill the lake this spring.) Boulder City is approximately 1000 feet higher than the lake, and has a fine airport, which is a regular scheduled stop on TWA's transcontinental air route. Much of the terrain bordering the lake is rough, with exception of such areas as Hemenway Wash, site of the Grand Canyon-Boulder Dam Tours' boat landing. This section presents a long sloping shore with a gradient of 4% at the mooring harbor. A straight line flight east and west over Lake Mead can be continued for about seventy-five miles with suitable landing area for either landplanes or flying boats of any size within normal gliding range at any time. Nature of the bottom of Lake Mead at Hemenway Wash is sandy, with small rocks not over 6 inches in diameter. There are no stones or boulders to cut or foul mooring cable. Due to the present level of the lake, and the forthcoming Spring rise, it should be easy and practical, with the elaborate construction equipment still at the Dam, to build a 200-foot wide concrete ramp from the present water's edge to a point that will be above water at the highest lake level, and to install a permanent series of moorings for future use, by preparing the ramp and sinking the necessary weights on present dry ground and allowing the lake to rise over them, immediately prior to which chains and floats can be attached. As this is a freshwater lake which never freezes, and has ideal ceiling and visibility at all times, is situated 270 statute miles from San Diego, 265 from Los Angeles, 340 from Salt Lake, and 420 from San Francisco, it should have such obvious advant-

ages that the desirability of having seaplane facilities for itinerant flying boats, for scheduled operations perhaps, and for use of the U. S. Navy, should be apparent. The saving possible if these facilities could be prepared on dry land before the lake rises is so great that a movement is now afoot to have this done.

"As the water was about 100 feet deep where we moored, and as the clearance to other moored boats was not great enough to allow us to use longer line which would have given us a satisfactory slope of line, we had Joe Messick arrange for the boatman to bring us a second 1000 lb. anchor, line and mooring. Bill and I slept aboard the plane the first night (Friday). There was a fresh wind blowing, and with such a steep anchor line, the plane tossed longitudinally more than it would have done if we had had a flatter slope to the anchor. The second night Tibbs and Mike Doyle slept aboard, the third night Bill Wheatley and Ed Stuhman slept aboard, and Monday night, Kline and Tibbs 'had the duty.' During the days there was always at least one of the crew aboard. Fruit, coffee cake, coffee and hot soup were always available. The temperature of the water was about 55° F. and it never got below 45° F. in the plane at night, although it was much colder than this in Boulder City, about seven miles from the lake, and at a higher elevation. The return flight was made on March 7th in a little over two hours at an altitude of 12,500 feet. The plane functioned perfectly at all times with the Sperry Gyropilot doing nearly all of the work. As the terrain is mostly desert and mountains we had occasional strong up and down air currents, and at times the climb indicator would show over 2000' per min. rate of climb with no change in longitudinal attitude of the plane or any change in throttle setting. At other times we would lose altitude rapidly too. It was comfortably warm in the plane at all times although the heater was not used. Bill Wheatley, as usual, flew in his shirt-sleeves and with his engineer's cap to cover his

baldhead and shield his eyes from the sun. "While laying over, we all visited Boulder Dam, Las Vegas, and many interesting desert spots in Nevada and Arizona. (The dam is half in one state and half in the other.) The warm, dry air, and extreme visibility, with mountains over one hundred miles distant standing out clearly, made the stay very pleasant. With every change in position of the sun, the mountains would change their appearance as to color and shadow effects, and one would never tire of looking at them. We all feel that Lake Mead will soon play an important part in the scheme of things as a seaplane landing facility. Its distance from the coast, measured in terms of maximum range of flying boats such as we build is insignificant, and the perpetual good weather should make this lake an ideal supplementary base for this type of craft."

NEW CONTRACT

Notice of award of a contract for \$4,699,057 of Aircraft from the U. S. Navy has been received. In keeping with the Navy's policy, no information as to the type or number of aircraft may be released.

TOOL TATTLES

By Terry

This month's paper medals go to: Larry Boeing for his untiring effort one day to borrow a stick of gum from Ed Stewart. What a riot resulted! And to Jim "Huffy" Hull for the delicate fragrance that wafts the breezes from his direction. . . Kerm Seely for not losing his shirt the last few Monday nites. . . Who said frat Brothers? Bill Fleet, for covering more area of a Badminton court with the back of his shorts than his feet. . . but keep gritting your teeth, Bill! Thomas Coughlin for the tones he uses on the telephone to pour that old oil. . . Connie Seaderquist, for being able to take one night a week off for a trip to Tea Town and get back in time to change into his working clothes! Hank Liegel, for the wonderful advice he gave Johnny Kelly on what to do and what not to do about Kelly's coming marriage. I better get my cigar the day after Easter, Johnny. . . . And last, but far from the least important medal (this one even has a gold star) to the obliging fellow who guided the meandering boys from their Tonawanda Reunion, to their respective homes. From the last reports, everyone had a good time.



TRAVELER . . .

George J. Newman, Assistant Factory Superintendent, arrived back in San Diego from Dayton, Ohio, Monday morning, March 20th. He flew a new Fleet Trainer powered with a Warner 145-horsepower engine from Wright Field, Dayton, to San Diego with an overnight stay in Fort Worth. Total flying time was 22 hours for the 2,160 mile air line distance. This was made flying west into the prevailing winds.

George went to Buffalo to supervise and build the new Fleet early in January. Upon its completion, the Bureau of Air Commerce tests were conducted at Buf-

falo for the NC license. It was then flown to Wright Field to enter in the Army competition for the procurement of commercial trainers. There were some twenty-two different makes of ships in this competition ranging from 40 to 225 horsepower.

The Fleet has many new features, a few of which are: Complete new engine cowl, of reverse flow or nose slot type. Wing spars of laminated Douglas fir which allows the gross load to be upped to 2,180 pounds. Five and a half hours of fuel at cruising speed. Electric starter, generator, battery and radio.

WOOD CHIPS

By Bill Weaver

WE were recently discussing the kick of some high-powered guns, when Grumpy Leisenring told about one that kicked him, and then kicked him seven times after he was down. . . Pass the salts please!

Any person seeing four teeth chewing a piece of gum notify Johnny Cossar of the pattern shop as it would be greatly appreciated. These teeth were last seen jumping over the gate at the south yard with the gum sticking to them.

Some of you fellows who are buying homes should not become discouraged at the big heap of earth and rocks that usually is left behind in your yard. From the land of Sweden hails our bright blue-eyed

boy, Albert Oberg, where the land is kept as orderly as the homes. Al recently bought a home that overlooks the harbor. This was one of those forgotten places, until Al put on it the magic touch of his homeland. You fellows who are interested in what can be done with a strong back and a wheelbarrow should call and see what Al has done with an ugly duckling.

The boys are all set and ready to give that new home a good warming, that the Maestro of the pattern shop, Earl Wesp, has recently purchased.

Tommy Bell wishes to thank you boys who were so thoughtful in his recent bereavement.

Virtually any man can devise a complicated mechanism for a given task. It takes a smart man to devise a simple one.

What's All the Activity?

By Wm. A. Maloney, Plant Engineer

OF the many and varied activities now in progress throughout the plant, probably none has excited more curiosity and speculation than the construction of the foundations for the new drop hammers in the southeast corner of the Hull Department. This project, now nearing completion, has involved a considerable amount of preliminary research and investigation, and has required the solving of a number of construction problems. An article in a later issue will describe this work in detail. For the present, let it be said that the necessity of providing a secure and solid foundation for a group of the largest machines of this type in the industry, coupled with the necessity of preventing the transmission of harmful vibrations to nearby sensitive machinery and to foundations of the building, has presented the construction forces of the Maintenance Department with a highly interesting and worrisome job for the past few months.

The hammer foundations, covering a ground area of 60 feet in length, by 20 feet in width, and being located close to the center of factory activities, have attracted the lion's share of attention. Meanwhile, a number of other construction and modernization activities, equally important, are being planned and put into being with a minimum of furore and excitement.

The space beneath the Covering Department Mezzanine, formerly occupied by the Spare Parts Stockroom, has been enclosed with dust-tight glazed steel partitions, forming a Punch and Die Foundry 20 feet wide and 75 feet long, and a Plaster Pattern Shop 20 feet in width and 40 feet long. To properly convert this area for its new usages necessitated the installation of a Monorail System, an automatic sprinkler system for fire protection, a ventilating system handling 17,500 cubic feet of air per minute for the

removal of the heat arising from foundry operations and complete re-vamping of electric power and lighting facilities in this area. Two large gas-fired, tilting type, metal melting furnaces were purchased and installed, and two large crane ladles were installed on the new monorail systems. While the melting furnaces are both of the same size and general appearance, they differ in capacity and operating temperatures. One will be used for melting "Kirksite," a zinc alloy used for drop hammer dies and has a pot capacity of approximately 8300 lbs. of metal. The other furnace will be used for melting lead for drop hammer punches and has a pot capacity of 12,000 lbs. of metal. This difference in pot capacity is due to the relative densities of the two metals.

"Kirksite" has physical properties which render it much better die metal than pure zinc, and it must be carefully protected from contamination by lead, which destroys its outstanding properties and renders the metal useless for dies. For this reason, the two furnaces are installed at opposite ends of the foundry, and all ladles and other equipment used in handling the molten metal, are conspicuously labeled and identified to insure being used only with the proper metal.

Included in the machinery purchases of the past few months are a hydraulic press having a capacity of 4500 tons and platen dimensions of 9'-10" wide by 11'-8" long and a single acting, double crank press having a capacity of 1000 tons and with platen dimensions of 4'-0" wide by 8'-8" long.

The hydraulic press has a total weight of 600,000 lbs. and the crank press will weigh approximately 155,000 lbs. Both of these machines will require special foundation, the construction of which will soon be under way. They will be installed in the Sheet Metal Department in the low bay, and will require alterations to the roof structure and the construction of penthouses above the press superstructures.

To keep pace with the ever-increasing size of detail parts, a new salt bath furnace is being installed in the Heat treating Department. It will have a capacity to heat treat 2000 lbs. of aluminum alloy per hour, and will be one of the largest furnaces of this type in the industry. The

salt pot will be 21 feet long inside, and will require approximately 18,000 lbs. of potassium nitrate and the same quantity of sodium nitrate for its initial charge.

Probably the most interesting structural activity that has taken place in the past year, is the complete re-vamping of the heating and ventilating system in the Paint Shop, and the construction of three new large spray booths of the "water-wash" type. These booths were built and installed, and the old equipment replaced by them removed, without interference with production.

The presence of lacquer and solvent fumes in the Paint Shop precluded the performing of such operations as welding or riveting inside the shop, and did not permit of using motor drills, or even allow the use of such tools as chisels or hand drills because of the danger of fire and explosion. Consequently, the booths were erected completely with all fans and other machinery and equipment in place in the yard and moved into place and installed on various week-ends when the Paint Shop was shut down. An idea of the magnitude of this task can be gained by the photograph of the central booth used for painting hulls and fuselages. This particular booth is 30 feet long and 20 feet wide by 18 feet high inside, and exhausts the air thru the louvres shown along each side. The "make-up" air required is drawn into the booth from the open ends. The other two booths are of the "open front" type and are each 10 feet high and 8 feet deep. One is 30 feet in length and the other 65 feet long.

To supply the 203,000 cubic feet of air per minute required in the Paint Shop, three large supply fans are necessary, driven by a total of 95 horsepower of electric motors. This air is exhausted thru the spray booths, by a total of 9 exhaust fans requiring 62½ horsepower of motors.

In operating paint spray booths of the "water-wash" type, the exhaust air is passed through a finely atomized curtain of water which precipitates the pigment and solvents from the air and deposits them in a sludge tank. The air discharged to the outside atmosphere is pure and clean and, consequently, does not spread objectionable paint residue over the surrounding territory. To supply the water curtain, three centrifugal pumps are used, one for each booth, requiring a total of 27½ motor horsepower.

The operating experiences during 1937 and 1938 indicated that the air compressor installation, while adequate for existing needs, did not have sufficient capacity to serve four new pneumatic drop hammers

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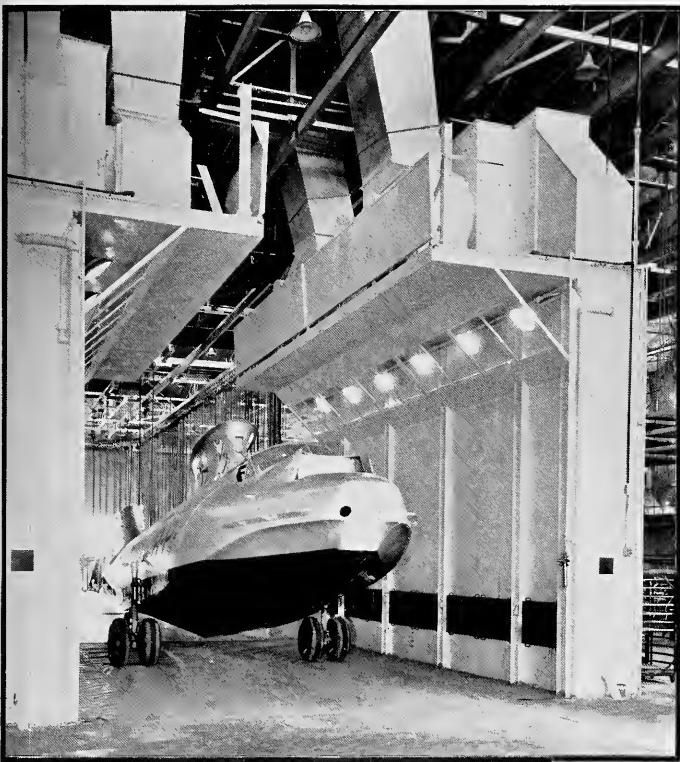
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CENTRAL SPRAY BOOTH

added to the present load. Late in 1938 a new Worthington 20"/12"x14" horizontal two-stage compressor was purchased. This compressor, which is driven by a 200 HP motor, has a capacity of 1135 cubic feet of free air per minute. With its installation and connection to the line, we now have an air compressor plant capable of compressing 2350 cubic feet of free air per minute, consisting of four single-stage and one two-stage compressors, driven by a total of 450 horsepower of electric motors.

When the new compressor was installed it was necessary, with the limited space available, to rearrange the system piping for maximum space economy and to make provisions for the day when it might be necessary to replace one or two of the small compressors with a two-stage machine similar to the unit just purchased. This changeover was carefully planned in advance, and this work has just been completed without interference with plant operations. Plans have been prepared and work is just being started on enclosing the entire power plant, comprising air compressors, heating boilers and anodic gen-

erators, with a dust-tight steel and glass enclosure.

Very few people know that the plant is equipped with a stand-by Butane gas plant to enable operation of the heating boilers and heat treating equipment in the event of emergency interruption of the natural gas supply. This plant was originally installed early in 1938, and proved its worth during the period of March 3 to March 6, 1938, when the gas supply to San Diego was cut off by a break in the main between here and Los Angeles. The original installation had a storage capacity of 4000 gallons of Butane Gas, sufficient to carry the load through any normal shut down due to sharp drop in temperature and increased demands on the facilities of the San Diego Consolidated Gas and Electric Corporation.

The experience of March, 1938, indicated that in the event of a shut down due to pipe line breaks during storm conditions, that the highways between San Diego and the oil fields would in all probability be closed and that there would be a strong possibility of being unable to secure additional supplies of Butane when

once the San Diego stock was exhausted. In the early part of 1939 an additional storage tank of 6000 gallons was installed and connected to the system. This additional tank will provide for ten days' standby under normal operating conditions.

In anticipation of increased business the capacity of the Raw Material Stockroom will be increased approximately 35% in capacity by the construction of a mezzanine for the storage of aluminum alloy extruded sections, etc. This mezzanine will have an area of 5750 square feet, and construction will start immediately.

SHEET NEWS

By Connie Seaderquist

RED KIMBLE of the Sheet Department had a very hard time the other day when the photographer asked him to stop chewing gum long enough to take a picture.

E. Raymond now charges \$1.00 for the use of his spray gun; it used to be free, why the charge? *Why???*

The boys in the Sheet Dept. are willing to teach Homer Millman how to use an air motor properly as he has a habit of getting grease all over himself.

D. C. Gale is building a new house in La Mesa and is already working on the lawn before the carpenters are finished with their work.

E. Raymond has a habit of drawing pictures when he starts talking. If you take the paper and pencil away from him he can't talk. I wonder why?

We see Walter Kuehne is wearing his usual smile again since his wife got back from the east. Welcome back, Mrs. Kuehne.

The boys at lunch hour are still trying to tell a taller story about their children than Al Ballard.

We hope that some one will inform Al Hatter that Halloween is past so that he will come out from behind the hedge.

We wonder if that big, bouncing baby girl, born March 1st at Mercy Hospital, had anything to do with Tommy Thompson passing out cigars to the boys in Sheet Metal. Mrs. Thompson and baby are doing fine.

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"Under the spreading chestnut tree,
the village smithy stands . . .

WELDING . . .

THAT was all right for a Longfellow or a Goldsmith to say, but since that time they've taken away the chestnut tree . . . it interfered with the installation of the traffic signals at 32d and Main . . . so, as far as securing any first hand information on the art of welding of that time or thereabouts was concerned, it looked like a fellow might just as well pop a question at the first person who hove into sight. . . .

"Bob Mussen, what sort of a flux did the old time blacksmith use when they welded up pieces of metal?"

"You've got me . . . I don't know."

"You know what we mean don't you? The kind of welding they did when they just heated up two pieces of iron, placed them together and hit them with a husky sized hammer. . . .

"I know, all right. I remember seeing a blacksmith hammer the carks on horse-shoes, but I don't remember what sort of flux he used. I tell you who would know, though: Jack Fleck out in the metal bench department. He used to be a blacksmith."

Fleck knew all right. . . .

"You heat up the two ends of the iron you're going to weld together. Then you hammer a taper on each of them to make a sort of a scarf splice fit, add some bone meal (the flux) and heat them up to a white heat. Pull 'em from the fire when the carbon is sparking, lay one on the other and hammer away. You have to strike fast while the carbon is sparking and the iron is white hot, or they won't grab." . . . hence probably the phrase, "Strike while the iron is hot! . . .

This process of welding was one requiring skill and plenty of brawn. The welding was accomplished while the metal surfaces were in a plastic state, by the application of repeated forging blows, and is little used today. It is much easier to use the clean, continuous and easily regulated heat of the gas flame and cause the metals to flow together in a molten state. There is far less brawn required, but the process is no less skillful. Perhaps in this modern form of welding even a bit more skill is required. With the coming of aluminum, stainless steels and a variety of alloys, skill and experience without a doubt amount to a high factor in welding . . . particularly aircraft welding.

For the beginning of welding in aviation, Leo Bourdon, chief of the Welding

Department, was consulted. Welding, like Topsy, "just growed" right under Leo, for he was in aviation before welding, recalls the methods used prior to the introduction of welding, and a brief account runs something like this: At first the few fittings used were made from mild steel stock and they were simply one piece of sheet, or laminated by "dip brazing." This process was simple. The pieces to form the laminated fitting were cut and bent to the desired shape, a flux applied between the contracting surfaces, and the parts held in position for the brazing with small rivets thru locations that afterward would be drilled out for bolt holes, etc. Thus assembled, the laminated fitting was either dipped bodily in a molten pot of brass, or it was heated all over with a soft flame and the brass flowed in between the sheets in much the same manner that sweating with solder is accomplished. When cooled the glass-hard flux was either chipped or picked off and the surplus brass filed away by hand. That was back about 1918 or earlier.

Then about 1920, Leo relates, welding began to come into airplane use with the introduction of the chrome-vanadium steels, though some dip brazing was still employed. Later, with the introduction of chrome-molybdenum, welding swung into full sway. The higher strength steels warranted much more than the low strength bond of brass, and welding provided that bond. Also, it brought with it the possibility of much more intricate structures. Structures that are virtually one piece of parent metal and are exceedingly strong with the distinct advantage of being light in weight. The bulk of the welding now employed is with chrome-molybdenum steel, a tough, high strength steel nearly ideal where the loads are concentrated and high.

It is difficult to make any statement about the art of aircraft welding, and have that statement hold true in every instance. It might be said that the filler or welding rod employed, is of the same composition as the parent metal being welded. Leo warns, though, that this is not necessarily true and illustrates with the case of stainless steel. Using rod of the same parent metal composition is not as satisfactory as using one of a slightly differing composition. Some welding operations utilize flux, and to good advantage,

while many do not. No two welding jobs have the same peculiarities. Each modified design has peculiarities unto itself. It isn't just a matter of "welding up" a couple of pieces into a fitting, as is sometimes thought. Some designs, mighty simple and innocent on paper, can cause a bushel of welding grief.

Both Leo Bourdon, foreman, and Charlie Pettit, one of the ace welders of the department, chipped in with concrete examples to show why this is so, drawing from their experience to show why every aircraft welder is subjected to the periodical Navy-conducted tests, conducted solely as a check on his ability as a welder. And why every vital welded piece turned out by a welder, has his own individual identifying mark on it. This really is his stamp to say that he has put his utmost skill into that particular work and stands



Foreman Leo Bourdon of Welding, still likes to tinker with welding . . . has a complete welding outfit at home and recently made this iron door-knocker. Hat brim is a washer, basket of welding rod, coat tail of sheet-iron . . . every inch a bit of welding.

his skill and experience behind its perfection. A most rigid inspection system verifies his workmanship, checks even into the heart of the metal thru the ingenious Magnaflux method.

On the mechanical side of welding it should first be realized that the welding flames create an intensely hot, localized area about the weld . . . hot enough to melt the two pieces and the filler rod, hot enough to cause the metals to run together, and (sad to relate) hot enough to cause the inclusion of carbon in the metal if the flame is not neutral and leans to the acetylene side (which tends to make the

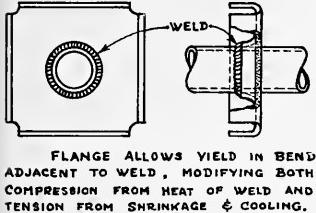
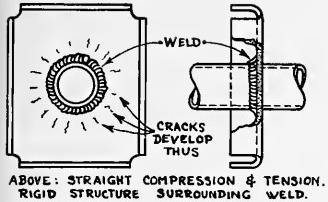


FIG. 1

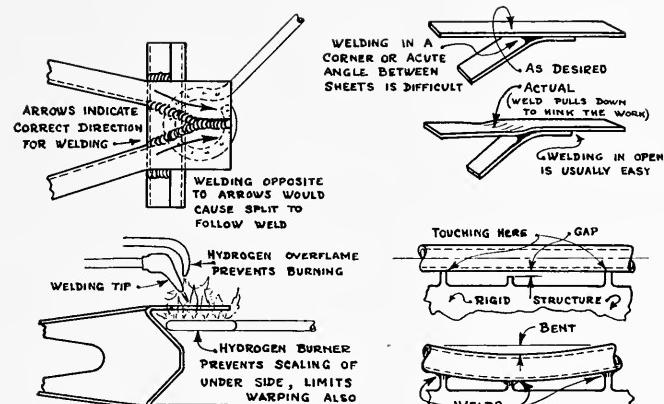


FIG. 2

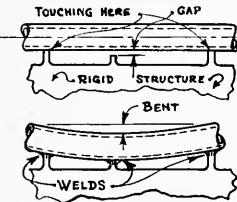


FIG. 3

weld brittle and worthless). Hot enough also, on the other hand, to take full advantage of an excess of oxygen, and to burn, rather than to weld. Thus the first requisite of a good welder is to know when a torch is neutral. But further than this it is necessary to know not only how to walk this neutral fence, but which way to lean . . . Stainless steel for instance, while normally immune to the ravages of oxygen, becomes plenty thirsty for it at high temperatures, and a slightly reducing flame is used to take care of gauge fluctuation which might make it run to the oxygen. If the melted tip of the filler rod is removed from the flame, an oxidized coating forms over the ball which will not mix with the weld puddle, and it becomes necessary to melt this ball off and start anew.

The intensely hot and localized heat at the point of welding causes the surrounding metal to expand in proportion to the degree to which it is heated. Obviously, a short distance from the weld it is heated very little. Thus, at the very point of welding the expansion is greatest and farthest removed from the weld it is practically nil. Normally the puddle of molten metal shrinks more in cooling, than it expands during the heat of welding. Therefore all welding fixtures are made oversize and allowances are made for the shrinkage to be expected. Sometimes the design of the work itself brings about a condition in which both the expansion and contraction plus the shrinkage, brings about trouble with the welding operation and results. There must be allowance for expansion, contraction and shrinkage, or some part of the weld will suffer.

A simple and excellent example of this

is shown in Fig. 1. Here it was desired to run a tube thru a box-like structure of considerable stiffness, (with the flanges as well as the area of the bottom contributing to this stiffness), and to weld around the point of passage of the tube thru the box. Due to the stiffness of the box around the weld, the expansion forces the metal in the area surrounding the weld to be compressed. The outer areas remain cool and resist this expansion with their full strength. In the areas between, which are progressively cooler toward the outside, the force of expansion acts upon the metal in what amounts to cold working. Here the crystal structure of the metal is crushed and compacted together. Then, as the immediate area of the weld cools, it contracts more than it expanded, pulling with great strength upon the very structure it has just compressed, also pulling forward and back around the weld. Being restricted in contraction as it was in expansion, and with no allowance for the added shrinkage possible, all it can do is to pull until something lets go. The area around the weld will develop cracks as indicated.

The solution is shown in the lower sketch of Fig. 1. The hole of passage for the tube was made considerably undersize and flanged with a generous radius inwardly. Then the welding was done along the flange edge. Thus constructed, the flange radius allows bending to take place in the flange both in expansion and contraction and allows absorption of the shrinkage easily. Actually, as at first designed, the chances were much against even the most skilled welder being able to complete the job satisfactorily. When changed to the flange solution, however, far less skillful welders experienced no trouble at all. Allowances for expansion, contraction

and shrinkage must be designed in such cases in the work itself.

In a variation of the same principles causing trouble, one tube was run inside another with a very close fit between them. On the outer tube a fitting was welded. On cooling a crack was apt to be found in the outer tube at any place on its circumference adjacent to the welding. The explanation being that in welding, the outer tube was heated first and expanded away from the inner tube. As the welding progressed the inner tube became as hot as the outer tube and brought the clearance in this dually expanded condition back to the original close fit. On cooling however, the welded area of the outer tube tried to take up its expansion thru contraction and in addition the weld shrinkage. The inner tube had little or no shrinkage since the weld did not penetrate this deep and further it could not contract as rapidly as the exposed outer tube. The net result being that the outer tube tried to shrink and contract but was prevented from doing so and simply split.

The above are cases in which the nature of the work itself caused the trouble to be immediately recognized as much above the limits of the metal. But even under ordinary circumstances the welding, being confined to a small area at a time that

(Continued on page 10)

LINDBERGH FIELD CAFE

Administration Building

Lindbergh Field

▼

"The Home of Aviation"



CONSOLIDATED AIDS DICTATOR

BELIEVE it or not, *Consolidated Aircraft* employees, American Export Airlines and even the U. S. Coast Guard actually aided the Dictator ruled Republic of San Christobal in the perpetration of a most magnificent fraud! The only trick in this statement being that the Republic of San Christobal exists only in the imagination of the Paramount Movie Studios scenario writers, and "The Magnificent Fraud" is the name of the motion picture, some scenes of which were recently filmed at the U. S. Coast Guard Base on Lindbergh Field.

The American Export Airlines' *Consolidated* Model 28-4 flying boat was loaned for the taking of several shots which will appear in the fore part of this picture when it is released. The picture concerns a dictatorship of a fictitious nation, San Christobal, some bombing, plotting, romance, etc. It appears to have all the elements of a good evening's entertainment. But just to be doubly sure that the public will take to the picture, a long list of stars were selected including Lloyd Nolen, Akim Tamiroff, Patricia Morison (who undoubtedly supplies the romance) the seasoned Mary Boland who plays Miss Morison's aunt, Robert Warwick, George Gucco, Frank Reicher, Ralph Forbes, Mr. Cossart, etc., etc.

Included in the long list of stars Paramount probably will not mention on the screen introduction are such outstanding personalities as Mr. Michael Doyle and Mr. E. L. Stuhrman of the American Export Airlines; "Bill" Wheatley, Jack Kline, Robert Keith and Gene Tibbs of *Consolidated*. These gentlemen did the "under-

cover" work in handling the Model 28-4 for the movie . . . the same plane which will be used within a month or so by its owners, The American Export Airlines in their preliminary work in establishing airline service across the Atlantic.

It seems that one of the most modern seaplanes was needed in order to impress the screen audience with the importance of an international banker and his mission of making a loan to the Republic of San Christobal . . . Soooo . . . what could be more logical than a *Consolidated* Model 28?

Tuesday, March 14th, the day of the taking of the movie shots at the Coast Guard, started out dull and cold. The entire cast and the extras waited under an overcast sky all morning for the sky to clear and make possible the "takes." From the local employment office the extras, approximately 50 to 75 in number, were selected to play parts in the greeting military band of San Christobal, guards, escorts, etc. The bandsmen, as a sidelight on the technique of sound filming, had all the instruments necessary and were very complete in their white uniforms, but all that they did was go through the motions of playing, making no actual sound. A phonograph on a loudspeaker brought the music and gave them their timing!

Watching the filming of this sound film work was intensely interesting and very enlightening. The entire cast and crew working on the location were most courteous and generous. Our demon photographer Otto Menge was afforded every assistance desired in taking his stills.

"Bill" Wheatley, because of his experi-

ence with the Model 28, handled the controls in the scene in which the plane taxies up to the end of the pier to disembark its famous international banker, and it was taken without a hitch. The pier used was the one at the south of the Coast Guard buildings nearest the ramp, and it had been decorated with bunting, flags and guards for the occasion.

From the information garnered, it is understood that some of the interior shots of the Model 28-4 will be made up at the studios, and for this a mock-up will be made, showing the interior in a very modern motif. It will be interesting to note what the studio artists will do in the way of decorating and furnishing the insides of one of our planes.

After the entire cast and field crew waited patiently all morning for the weather to clear up, action finally was possible just at noon. The American Export Airlines' plane was taken from the plant yard, towed to the ramp and boarded by the aforementioned "undercover" crew. The plane in a sweeping approach, was taxied out and around to the pier for tying up and releasing its passengers. Everything sailed smoothly in the two

→
How the arrival at San Christobal won't look to the movie audience; Stepladders, reflectors, microphone boom, sound cameras and stage hands on the barge alongside. Patricia Morison, star, poses for a shot in one of the hatches of the American Export Airlines' survey plane. Disembarking from the plane to the dock, Lloyd Nolen in white on left, Patricia Morison in white hat and jacket, Mary Boland with fur, Ralph Forbes in white behind the boom. The poor fellow on the right spent all afternoon holding the cloth screen aloft to diffuse the sunlight which would otherwise have fallen directly on the stars.

← The Consolidated Model 28-4 of the American Export Airlines alongside the pier in San Christobal as its passengers disembark. The guards and officials awaiting the cue for action. The Consolidated Model 28-4 can be seen at ease in the background.

shots of this particular bit of action. There followed some closeups taken of the actors climbing into a waiting car with its military escort, and then the scene of operations moved to the end of the pier for closeups of the greeting of the plant's passengers as they alighted.

It took a considerable time to run the

and while they did not fly anywhere near overhead, their powerful engines succeeded in kicking up a ruckus in the recording film to spoil the take.

At about this point, with an actual period of quiet (but with the actors growing weary of being stopped by outside noises) one of them muffed his lines, and of course a repeat was necessary. In the middle of another apparently "plane-free" shooting, an incoming train sounded its toots on every crossing. At another try the actor went past his slip and the actress

pounding on the dredge pipe. The unaware, but nevertheless offending, workman could be clearly seen as his hammer rebounded at each lusty blow, and then the note of the falling hammer would be heard. But he was out of earshot, upwind. As this ended, the shrill note announcing four o'clock came over the water! In exasperation someone shouted, "Bring 'em on all at once, will ya? . . . and everyone laughed.

Some four scenes had been taken in what totaled possibly an hour, prior to trying

SHIP OF SAN CHRISTOBAL!

electrical lines out to the end of the dock, manoeuvre a large barge into position for the cameras, reflectors, etc., and to set up all the necessary equipment. In due time this was all arranged and accomplished, even to a couple of rehearsals. But when the actual "take" was attempted, the fun began.

What followed was a most annoying series of events which would have driven a less tolerant crew and troupe to the point of hysteria. For no sooner would all be in readiness for a take in sound, than one of a group of student planes from the field would take-off and fly directly overhead, pounding the noise of its engine into the recording film. This happened probably no less than a half dozen times. Once a shining new plane, a visitor to the field, did the interrupting. A small "put-put", apparently making practice landings and take-offs, insisted in circling overhead on its routine hops. Two high-powered planes of the service took off at separate times,

fumbled. On a couple of other occasions there were delays while high flying Navy planes cleared the sky of their noise. The call for "Quiet" seemed to bring but a few moments later, at least *some* kind of an unwanted and distracting noise to the ears of the patient sound men. Once a couple of motorcycles started their motors.

Just as things had settled down to a nice, long-desired quiet, some playful porpoise came to within fifty feet of the barge, and of course attention to the acting was out of question, for the majority of those present had never before seen porpoise at such close range. They did put on a good show. It is likely that their noises of blowing would have been picked up by the sensitive microphone, anyway. They were that close.

The afternoon wore away with these events continuing to interrupt at just the wrong moment. The flying quieted down. Then from far out over the water came the regular sound of a sledge hammer

to take the troublesome scene, and they all involved far more chances for slips in the actual acting, for in them practically all of the troupe including the extras were involved. The final scene, where all the outside trouble came in, had as a contrast but few characters, and it took from about 1:00 o'clock 'till after four! If the whole scene was actually secured even then, from the innumerable takes made during this time, it was possible only through the technical trick of cutting and splicing . . . no complete, trouble and noise-free scene had been completed to 4:00 p.m.

While the Consolidated Model 28-4 of the American Export Airlines does not star in this picture of Paramounts, as did her sister ships the PBYs in Warner Brothers "Wings of the Navy," still it is interesting to mark this as a prelude to the job this Commercial model 28-4 has before it in the preliminary and subsequent work of establishing American Export Airlines' flying route across the Atlantic.



WELDING . . .

(Continued from page 7)

progresses from one end of the weld to the other, sets up strains in the welded piece and this is the reason for normalizing. The welded up structure with its strains, is soaked in heat until it is uniformly relaxed and the strains ease out of the stressed areas. Unless precautions are taken in this normalizing, long or weighted pieces are apt to sag in the normalizing furnace and undesirable straightening is necessary after the normalizing. To avoid much of this the welders tack weld on re-enforcing pieces which are cut loose after the heat treatment.

Another phase of welding in which normalizing plays a large part is in the welding of large or complex assemblies in which it is desired to hold the work to close finish dimensions for subsequent machining. If the entire assembly is welded up immediately as a single unit, the strains set up and the interaction of them during the normalizing may easily warp the structure all out of shape. To avoid this the assembly is broken down into sub-assemblies in which the welding becomes more or less self-contained. Then these sub-assemblies are normalized after welding to remove the strains. Allowances are made in welding to allow for fitting the sub-assemblies together and they are straightened in themselves if found out of alignment. Then in the final assembly of the sub-assemblies into the one whole structure, only simple strains can be set up, rather than the danger of compounded strains and the likelihood of the structure being warped beyond recovery is averted. Fig. 3 indicates two simple shrinkage or warping effects which can be compounded into a lot of trouble in an intricate structure.

While most of the welding is done with the oxygen-acetylene flame, hydrogen is likewise brought into play with great benefit. Hydrogen is used for the welding of aluminium because it smothers the area surrounding the area of the weld with hydrogen to the exclusion of oxygen and prevents the aluminium from oxidizing. Two oxidized aluminium surfaces will not

weld well even with the application of liberal amounts of flux. Hydrogen too, can be called to good turn simultaneously as a pre-heater and to prevent the formation of scale on thin steel pieces. While it actually heats of course, it seems to have the property of cooling, or at least of spreading the heat from a weld so that distortion is not so apt to occur. A simple hydrogen burner of copper tubing shaped to fit the work and used on the back side of a thin steel sheet being welded, largely prevents the formation of scale. See Fig. 2.

A hydrogen burner placed above the oxy-acetylene torch and directing a flow of hydrogen down on the weld area helps also on the top side of the weld. Complex welds with sheet as thin as .035 can be accomplished by an airplane welder with comparative ease thru the application of this principle.

If the welding could be made to take place over the entire line of the weld at one time, it is probable that many of the problems associated with welding would be eliminated, but since it is necessary for the welding to progress along as a concentrated cone of heat from one end of the weld to the other, difficulties are multiplied. The direction of the progress of the weld has much to do with its successful completion. One direction will work perfectly, the reverse will split the work.

Welding in the trough of an acute angle is difficult, because the weld puddle should be in the very bottom and this is where the most heat should be concentrated but actually the hot flame cone is always closer to the adjacent walls. The result is that the bottom of the weld is apt to be not fully molten, the sides burned or melted away.

Welding in a confined area such as a pocket or inside a tube is another condition or predicament hard for the welder to cope with to the full extent of his skill. Here the torch tip becomes excessively heated. Apparently something in the manner of a breakdown in the structure of the acetylene takes place and a perfectly neutral welding flame on the outside becomes an oxidizing flame under the excessive heat. This can be demonstrated by turning the flame of one welding torch upon the tip of one burning with a neutral cone. As the tip becomes heated the cone can be seen to become hard and if carried to a sufficiently high temperature after the copper tip begins to glow red, excessive burning soon destroys the tip. To combat this particular trouble, Charlie Pettit and some of his welders rigged up water-cooled welding torch tips and the results are very gratifying.

BADMINTON

THE successful termination of the first Consolidated badminton tournament has established a high precedent. Fifteen women and thirty men participated and 125 matches were played.

Due to the committee's lack of tournament management experience, the contest was subject to a few justifiable criticisms, but the committee take this opportunity to quote in part the following familiar axiom ". . . but you can't please all the people all the time."

Men's Veteran Singles was won by John Lockwood who defeated Evan Terry in the finals by the close scores of 15-10 15-13. Lockwood played splendid badminton and was consistent in placing his shots.

Terry and Powder won the *Men's Veteran Doubles* by defeating Robbins and Lockwood in a fast and even finals match with scores of 15-12, 12-15, 15-12.

Women's Singles winner was Mrs. Frank O'Connor who defeated Grayce Holm in straight sets.

Mrs. O'Connor teamed with Genevieve Holm to defeat Mrs. Whitaker and Avis Clark by scores of 11-1, 1-11, 11-9, thus winning the *Women's Doubles*. This set was hard fought as the teams were evenly matched.

Men's Novice Singles was won by Don Kirk who defeated Ray Tuite in an exciting finals match. Both finalists proved deserving of a "veteran" rating in our next tournament.

The *Mixed Doubles* team of O'Connor and Henninger defeated Shonberg and Tuote to take first place in this event.

Men's Novice Doubles event winners were Kirk and Farnsworth who encountered stiff competition in defeating Whitaker and Stephens.

Winners were presented with prizes donated by local sporting goods stores.

Using the results of this tournament as a basis, "ladders" will be established upon which every player will be ranked according to estimated ability. We hope the "ladders" will stimulate competition.

The committee is contemplating another tournament in which every participant will play four times in doubles events only. Your questions and reactions are invited.

Thanks to all concerned for making the tournament a success.

Bouley,	Henninger,
Gilchrist,	Terry,
Kastelic,	Lockwood.

The only difference between success and failure, is trying just once more.

Phone Jackson 2011 Chick Runyon

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Fred Grossher, basketball manager, and the winners: J. Stevens, S. Sheppard, D. Basore, S. Galasso, I. Craig, R. Hayman, W. Summers.

CHAMPIONSHIP BASKETBALL

Another basketball season has come to an end for the 1938 and 1939 session and we find the Hull Department team champions again, making it two consecutive years.

Though our inter-departmental teams were far less in number than last year, this made it more competitive, due to the fact that *Consolidated* has lost some very fine basketball players (and how).

The Hull team took on some tough competition outside of their regular schedule and managed to do more than their share, by winning most of them.

Now back to some of the highlights of our games which were played at the Municipal Gym which was newly refinished, and equiped with a lighting system that can't be beat. The first half of the season went along in a rather rough manner, taking some of the boys a little while to get into shape. There were such things as: loosening up muscles, doctoring up bruises, and some very hard falls . . . (how about it Willie Liddle?)

The most talked-of game of the first half was between Hull and Production in which the Hull team won by a nose and Mr. Hotchkiss by a few extra gray hairs due to a little side bet, so they tell me.

In the second round of play the matches were much more exciting and closely played, as Hull, Engineers, Final Assembly and Purchasing were tied for first place and then things began to happen. Maintenance, winning their only game of the season, defeated the Engineers, which was the upset of the season. And then the Engineers came back fighting mad to take a strong Final Assembly team in two overtime periods, leaving but Hull and Purchasing in a tie for end of the second half.

The day was set, and sleep was lost by more than one player as this meant that Purchasing had to win in order to chance the second round and have another chance to play for the championship, since the Hull team had the first round of play well tucked away under their arms.

The Game: The whistle blew and some four hundred basketball fans watched and tooted for their favorite team to win. The game went on with the Hull team leading throughout, but by a very close margin. This kept the fans on the edge of their seats as anything could have happened. The score at the end of the third-quarter was, Hull 19, Purchasing 16. Then the Hull boys took things in hand and they really started to pour it on, winning by a

wide margin of 35 to 20 to give them the championship.

Consolidated is donating gold basketballs to the championship team, which the boys will soon be showing around.

Fred Grossher, Mgr.

	First Round		Second Round		Totals	
	Won	Lost	Won	Lost	Won	Lost
Hull	5	0	4	1	9	1
Purchasing	3	2	2	3	6	4
Final Assembly	4	1	4	1	7	3
Engineers	2	3	2	3	4	6
Production	1	4	1	4	2	8
Maintenance	5	1	4	1	9	9

POINTS SCORED BY EACH TEAM

	First Round		Second Round		Totals	
	First	Second	First	Second	First	Second
Final Assembly	107		132		239	
Hull	116		122		238	
Purchasing	111		110		221	
Engineers	116		95		211	
Production	60		60		120	
Maintenance	52		50		102	

CHAMPIONSHIP GAME FOR
SECOND ROUND

Hull ----- 35 vs. Purchasing ----- 20

WHY DOES . . .

By Eddie Raymond

Why does W. Seely find so much humor in life, and I don't mean Life magazine?

Why does timekeeper Shonberg claim he has so much iron in his body? Magnets, keep away from Shonberg!

Why does B. Sheriff ask so many questions about his own inventions?

Why does Teddy Edwards complain his chickens lay square eggs?

Why does Benny Kiegel think so much of the town of Tonawanda?

Why does Jim Mussen take such pride in his neckties?

Why does Geo. Young go in for art with a black background?

Why does Bert Gimber want to be original and keep a lighted cigarette behind his right ear?

Why does Sam Seligman always carry a blueprint around in his hip pocket? Is it to show him what to do throughout the day?

Born to Mr. and Mrs. Arthur Lee Sepin of Hulls, a son, Arthur Lee Sepin, Jr. He was born on March 6th and weighed 10 pounds, 2 oz. Congratulations!

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PRODUCTION MINUTES

By "Brad" Bradshaw

THE Rod and Reel Club copped the month's social spotlight with their annual banquet, as well as putting plenty of members on the "spot" if you know what I mean. Those swash-buckling, fearless he-men of the great outdoors who can look the most ferocious jack rabbit in the eye without a quiver, and battle a two-pound croaker to the finish, did themselves mighty proud in staging one of the most entertaining events in many a moon. Roy Coykendall carried off most of the prizes with his nifty catches during the season and what swell prizes!! To give you non-members an idea of what you are missing by being "non" we will let the lucky fellows testify.

Says Secretary Glenn Hotchkiss, "Coykendall may have won most of the prizes, but remember, he was in charge of award distribution and anyway, that autograph I got was no small catch." "Wow" says Chief Jack Thompson, "It was sure hot and stuffy in there during part of the entertainment. Maybe I was running a fever." Anyway, his face was red. Comments Eddie Lang, "It's no use—one man cannot consume a keg of beer in an evening, but give me credit for trying." Nick Tuevsky, the Russian playboy, remarks "Next time I get hair cut and maybe I see better." (But why did he sleep in the trailer?) Chuck Hibert moans, "It was a gyp as I was supposed to get a lei out of the deal and got chiseled." Says George Wire, "I must have brought the wrong 'bones' as Charley Mayer sure took me to the cleaners."

George Young asks, "Where did Leo Bourden go? I hope he finds the right house on Point Loma." Alibis Leo Bourden "So help me I thought that was the check room. Even your own friends betray you." Bob Mussen, "Anyone who can play anything is invited next year. Blow me down, I hope no one writes a diary." Chuckles Jim Patton, "Those skinny guys sure envied my capacity." President "Pinky" Miller, super sleuth, spent most of the evening looking for his stolen hat finally proving crime does not pay.

Some of the fellows just wouldn't talk and maybe they had a reason or just couldn't remember anything. Join up fellows and enjoy the fun, as they are a swell bunch of boys.

Our old pal, Lloyd Bender has added several pounds of blubber to the different parts of his anatomy in recent days and we uncovered two reasons. First, he has stopped depending on the game he kills for food, and secondly because Orpha, the sterner half, is keeping him home of late. Lloyd always gave her his salary check the first of the month and she just found out he gets paid every two weeks. Anyone want to buy some good golf clubs and a gun?

During the days of Lent we find several of our worthy friends going through the usual sacrifices for their multiple of sins. Lloyd Bender, Bill Liddle and Ray Hartmeyer signed a pact, binding as a European peace treaty, to refrain from smoking. This lasted 15 days but they still refuse to buy the "nasty weed" so believe the bargain is half fulfilled. Leo Neimet, Heat Treat, brings no lunch but still has plenty of surplus fuel around the middle to last a spell. This was probably George Steirringer's idea, so Leo would not spread too much to get in the furnace on clean-up days. Gracie Koenig is not making dates with any new boyfriends, but says the old ones still have their usual chances. Jim Wilkinson refused even a "snort" while serving as bartender during an entire evening. Maybe this was because of Lent or merely a mental condition, you guess.

Jack Mulroy broke over and drank a glass of beer in honor of dear old Ireland and Saint Patrick. "Get along with ye blarney," says Jack, "the old boy did rid Ireland of the 'snakes' and that's more than anyone ever done for this country." I hope he didn't mean anything personal.



THREE quintets of keglers are staging a battle royal for the championship of the Consair Bowling league which is in its 21st week of competition at the Sunshine Alleys. The Wing Department crew of pin-artists is pacing the league with 48 points won and 32 lost and close on their necks is the Production aggregation who have won 46 out of a possible 80 points. Third place is held by the quint from Experimental with 44 wins and 36 losses on their record.

The Wing team of snipers of the maple-ways is composed of Jack Edwards, Bill Armstrong, Paul Di Giulio, Leo Danner and Steve Smith. The personnel of the Production team is made up of J. E. Wilkinson, Roy Coykendall, Tom Jones, W. N. Liddle, Arnold H. Sprenger and Harvey Muck. The quintet from the Experimental department is made up of Russell Wright, Ward Levere, Ed Hanzlik, Ed Lang and George Galley.

In gathering data for the March 1st average books which is being published by the Sun sports staff many interesting sidelights on the Consair bowlers came to light. For instance Morton of the Maintenance team has Chauncey for a starting monicker. "Mac" Clutinger gets his nickname from McKinley and Paul De Gino's name is not De Gino but Di Giulio, all opinions to the contrary notwithstanding.

Bert Freakley has the reputation of being Consair's most enthusiastic pin-popper. Bert is always on hand an hour before the match games start and usually gets in four or five practice games before the whistle blows.

The ranking five players of Consair according to the Board of Merit at the Sunshine are Michael Brooks 175, Arnold Sprenger 173, Irving Craig 171, Jack Edwards 169, and Steve Smith 169.

	Won	Lost
Wing	48	32
Production	46	34
Experimental	44	36
Tube Benders	41	39
Machine Shop	40	40
Sheet Metal	39	41
Hull No. 2	38	42
Hull No. 1	37	43
Maintenance	37	43
Final Assembly	30	50
 Engineers' League:		
Equipment	32	20
Loft	30	22
Armament	26	26
Hull	25	27
Power Plant	22	30
General	21	31

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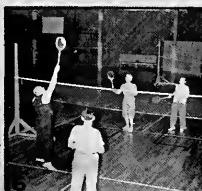
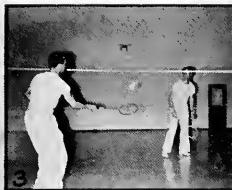
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1. Mr. and Mrs. Ernie Hodgson and daughter, Muriel, lawn bowling. 2. Wm. Liddle and Vince Gilmore prove that purchasing produces points. 3. John Lockwood and Terry in the final badminton playoff. Bottom, left, Willis, B. Snow with Roy Larceval on a fast getaway. 5. Doug Basore, V. Gilmore, Roy Larceval, S. Sheppard, S. Galasso . . . everyone a champion! 6. Bill Gilchrist, Frank O'Connor, Mrs. McGinnis and Grand Slam Champion Mrs. F. O'Connor . . . at badminton. All photos by Matt Wielopolski of the Machine Shop.

HULLabaloo

By Hep

Have you heard about the fast one George Wire pulled on a motorcycle officer recently? It seems he and Mrs. Wire were stopped for driving in excess of the speed limit. When the officer started writing the ticket, Mrs. Wire unconsciously pulled out her handkerchief and proceeded to wipe a cinder from her eye. George immediately seized the opportunity and began to plead with her not to cry. The officer was so impressed, he promised not to write the ticket. What's that old saying about "hiding behind a woman's skirts?"

*

"Red" Chaplin arriving home at a rather late hour, proceeded to undress with the aid of a flashlight, so as not to awaken Mrs. Chaplin. The neighbors seeing the light immediately phoned the deputy sheriff residing across the street from the Chaplin's. On hearing a slight tread outside, "Red" sneaked to the window and flashed his light into the bewildered deputy's face. It took them at least one-half hour to decide who was or wasn't the burglar, sheriff or what have you.

*

It might be a good suggestion to the management to stretch life nets around. If they could have seen "Johnny" Hopman come tumbling down, I'm sure they wouldn't hesitate. Johnny's still thanking his "lucky star" that he landed on his head. "Otherwise," he says, "I might have really hurt myself."

*

Congratulations to Mr. and Mrs. Art Sepin. It's a boy. Mother and son are doing fine. Art is still convalescing.

San Diego Flying Club News

THE San Diego papers devoted considerable space to an account of the anniversary of the club recently and we wish to thank Mr. Ernie Hulick for his splendid efforts.

Work on the Taylor Cub is coming along nicely. The Tail assembly and fuselage have all been recovered and repainted. Melvin Knutson is responsible for the checkered artistry. Tommy Butterfield was a whiz at rib lacing until he discovered he had the rudder finished before he remembered the tapes!

Leboffe, LeVine, Buzzelli, Sidney, Birch, McCannan, Griffith, Buck, Hubbard, Knutson, Butterfield and many others have all been putting in their two-bits worth. Recovering of the wing will start shortly. A couple of weeks and we'll all be flying a red cub with silver and red checkered tail. It looks nice too!

Orville Hubbard resigned his position as resident field manager so that he could have more time to study for his commercial license. He retains his position as Operations Manager, however, and intends to travel back and forth to the field by way of his newly acquired trailer. Mr. William Travis will be the new Field Manager and together with his wife will reside at the field.

Our instructor, Walter McClain attended the N.A.A. speed demons of the air (race pilot's) meeting in Los Angeles on March 14th, enjoying the occasion.

Maxine Hubbard.

*

Mr. and Mrs. B. Cook are the proud parents of a fine baby girl, born on March 16th, 1939. Congratulations from one and all.

*

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WING KEYHOLE

By Browne

Charlie Wegner, why did you buy that quart of Domeano?

Mr. and Mrs. D. Pearson were presented with a fine baby girl on March 15th. Congratulations and loads of luck.

George MacLean came in one Monday with a very red face. What caused it this time, George?

The Wing Department's "Seagull Club" has only two members to date, Fred Adams and Bill Bowlin. Who's next?

Mrs. Harry Birse was rushed to Scripps Hospital Sunday, March 19th for an appendicitis operation. We wish Mrs. Birse a speedy recovery.

Tommy Guarntta was scorekeeper at a recent Wing bowling match. Is that why we lost or was it cigar smoke in your eyes, Tommy?

Now that Ken Jackman is doing his stuff, Herb Ezard and Steve Powell are all smiles.

Gilbert Lance has been considering seriously disposing of his two goats lately, but the other night he came home and found they had doubled up on him. Congratulations!

The boys of the Wing Department wish their fellow worker, G. E. Terrill an early recovery.



Benny Keagle, assistant to Leo Bourdon, has gone in for Cub Scouting. He wasn't able to handle the Boy Scouts because they don't want to fly kites now, so he can be seen teaching the Cubs to master the art of kite flying at Brown's Campus grounds on Saturday and Sunday. Benny says it has some connection with airplanes.

W. Milton.

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PAINTS

FRAZEE'S
PAINT - WALLPAPER
Broadway at Tenth
Franklin 6207
Sherwin - Williams Distributor

Drifting Thru Drafting

By Bouley

Don Juan Wheat was as white as a sheet As he knelt at the feet of his lady sweet; But the crisis is past, and now at last The crowd is massed for the wedding blast. April second is the day, For by then D. J. will have his pay.

WE noted that Bob Lutz was married on March the second, and that Don Juan intends to change Miss Eleanor Mitchell's name to Mrs. Wheat on April the second. Wondering at this strange affinity of the second day of the month for nuptials, we inquired concerning fashionable dates. We were duly informed that the 2nd and the 17th of the month are regarded as "just utterly, utterly . . ." by that certain stratum this year. The reason is that both dates fall on the day after pay day.

At the bachelor dinner given for Bob Lutz the creature with the horns and the forked tail by some machination placed a covey of comely co-eds in the same banquet room. This caused no stampede or even sidelong glances among our intrepid males save for Don Juan Wheat (who was to be married in five short weeks) and Chuck Freel, an avowed woman-hater. These Lotharios rushed over and danced with the gals until the nickels for the phonograph gave out. When they returned, all flushed with excitement, they were given a rousing Brooklyn and forced to sit detached from the others for the balance of the evening. By the way, Lutz claims that his month of vegetable diet before getting married was the real McCoy, as it caused him really to appreciate his new wife's first cooking efforts.

Gene Holston modestly denies that his archery has a part in all the marital activity making the rounds these days. He counters with the suggestion that it is the "Proposals" book at the engineering file desk that is keeping all the young eligibles "marriage minded."

On the other half of the ledger of the Errata and Addendum department we emerge from billowing clouds of cigar smoke to confirm the interest of Len Cederwall in a young native who will soon answer to the name of Allen Leonard, and whose surname, curiously enough, is also Cederwall. Also Dapper Dan Duncan will probably now be forced to surrender his "best dressed man" title to another. His budget must be rearranged to buy Easter bonnets and slippers for his new daughter Patricia Lynne. There seem to be two opposing schools of thought in this matter of the next generation. The conservatives seek to have sons to support

their parents as the signs of senility appear, while the others as in the case of Duncan seek a gambling short-cut in having a daughter to marry into money.

We note that since athletics have been dropped from his manifold career of dispatcher-athlete-insurance salesman-writer, Production Minute Bradshaw's literary ramblings have taken a decided turn for the better. In fact he apparently now recognizes the fact that real news value lies in Engineering department activities, as evidenced by his poaching on our preserves in the matter of the doings of one Arne Vinje. However, as usual Bradshaw discovered only half the truth. Had we been consulted we could have told him about the time that Vinje leaned his golf clubs against his car in the garage so that he wouldn't forget them; yet the next morning he managed to arrive at the tee with nary a weapon save his hands and an amazed expression.

Along with Hank Nelson's amazing stories of walking along golf courses and having tee shots fall into his hands is one concerning a high scoring friend in the recent tournament, who reported that a bird perched on his golf ball just as he was about to drive. Those little feathered creatures certainly seem instinctively to know the safest place in a moment of danger.

Ernie Stout was back east on Consolidated business for several months at the N.A.C.A. towing basin. During that time he lost his Tau Beta Pi engineering honorary key from his watch chain. As they drained the three years' accumulation of muck from the basin recently, workmen discovered his key and returned it to him. While it is extremely doubtful if the presence of the key in the basin seriously affected the tests Ernie ran, its return suggests that there is something in this world that is as hard to lose as a mother-in-law.

Joe Davis of the loft tried unsuccessfully all winter to persuade his wife to knit him a slip-over sweater, but she quietly continued to knit little garments for the dog. Unable to determine whether he or the dog was really in the doghouse, Joe pressed the issue one day and finally the little woman blushingly admitted that she was unable to obtain a pattern of a sweater which would slip on conveniently over the Davis schnozz, which somehow or other seems to have missed that grindstone we used to hear so much about.



Engineering is always a compromise between that which is desired, and that which is practically attainable.

Gun Club X's

A few years ago ten members of the Consolidated Aircraft Rifle Club held an exchange match with ten members selected from the plant bowling teams. The purpose of the contest being primarily to provide a couple of evenings of good entertainment and an opportunity for members of the bowling team to learn something of target rifle shooting and vice versa. During the past couple of weeks another idea of similar nature was concocted in the fertile minds of the officers of the Rifle Club whereby it was decided to hold a triangle match representing three vastly different forms of sport—rifle shooting, golfing, and bowling. The purpose of this second contest was for the same reason as that of its predecessor—to provide a means for representatives of each of these groups to exchange contests thereby giving each entrant an opportunity to learn something about the other fellow's form of recreation and to have a good time doing it.

The reception accorded the plan was well nigh spontaneous, and in less than a week eighty entrants had been signed up. Saturday morning, March 18, 1939, seventy persons appeared at the San Diego Police Dept. Rifle Range on Broadway Extension to participate in the first leg of the tourney. It goes without saying that everyone had an enjoyable time, and some of the scores were quite surprising. McDougal led the field with an aggregate score of 183, giving him a rating of 96% for the first leg of the triangle. George Wire also fired, but apparently all he could see was spots before his eyes.

In closing we would like to repeat the invitation which is open to all employees of the Consolidated Aircraft Corp. and members of their friends or families, to be present on each Wednesday evening at 7:30 p.m. and join us in shooting on the rifle range, located in the basement of the Stanley Andrews Sporting Goods Co.

"Oh, what a strange looking cow," exclaimed the sweet young thing. "But why hasn't she any horns?"

"Well, you see," explained the farmer, "some cows is born without horns, and never had any, and others shed theirs, and some we dehorn, and some breeds ain't supposed to have horns at all. There's a lot of reasons why some cows ain't got horns, but the reason why that cow ain't got horns is because she ain't a cow—she's a horse."

AVERAGES FOR FEBRUARY, 1939

Name	No. of Times Fired	Prone	Kneeling	Offhand	Total
1. McDougal, D.	3	99	94	87.5	280.5
2. Schnaubelt, H.	4	99	90.5	85.5	275
3. Golem, Henry	4	98.5	90	83	271.5
4. Golem, Howard	4	96	90	82.5	268.5
5. Meyers, H.	4	98	88	78	264
6. Prior, H.	3	100	92	71	263
7. Kallis, F.	4	97.5	92.5	72	261.5
8. Schneider, P.	4	97	86	77	260
9. Waterbury, J.	1	99	86	71	256
10. Peterhansel, O.	3	93	85	61	239
11. Soares	4	90	87	61.5	238.5
12. Conniry, J.	1	90	88	60	238
13. VonMeeden, H.	4	94.5	82.5	58	235
14. Kipkowski, S.	4	89.5	80	65	234.5
15. Weber, L.	3	92	73	58	223
16. Benson, D.	2	81	66.5	39	186.5
17. Lawrence, H.	2	72	60	30	162
18. Bauer, L.	2	68	58	28	154

HIGH INDIVIDUAL AGGREGATE SCORE

McDougal, D. 285

HIGH INDIVIDUAL SCORES

Prone—	
H. Prior	100 (3)
Henry Golem	100
Howard Golem	100
K. Kallis	100
D. McDougal	100
H. Schnaubelt	100
Kneeling—	
D. McDougal	97
Offhand—	
H. Schnaubelt	90



THE MAIDEN AUNT

Some sing of beauty, some of fame
And some cold millions vaunt;
I hymn the untold value
Of the useful maiden aunt.

When grandma has an accident,
Or mother needs a jaunt,
Or father's bookkeeper absconds
Steps in the maiden aunt.

When sister's dress is not quite done,
Or brother's lessons daunt,
Or Bridget leaves—how capably
Steps in the maiden aunt.

Sometimes a stranger man will see
What these, her nearest, can't,
And consternation follows when
Steps out the maiden aunt.

—Selected.

Contributed by Bill Gilchrist, No. 808.

SAY YOU SAW IT IN THE CONSOLIDATOR

Gazozic
MAKES IT
FUN TO BE THIRSTY

OLD FASHIONED
Cream
ROOT BEER
BIG BOTTLE 5¢

Consolidated Philosophy

By D. R. Kern

Because he cannot reach the peak of the mountain, the wise man does not refuse to enjoy the view from a lower level.

The men whom I have seen succeed have always been cheerful and hopeful, who went about their business with a smile on their faces, and took the changes and chances of this mortal life like men.

Always do as you please and in a short time you won't please anybody.

Before it can pay taxes or anything else, industry must be allowed to function. You can't collect what isn't there.

Take a tip from nature. Man's ears are not made to shut—his mouth is.

A kind word, or a timely helping hand extended to a neighbor or friend whose prospects may not be as promising as yours may bring much joy and hope—at no cost at all to you.

When you are looking for faults to correct, look in the mirror.

When you arrive at the point where you know how little you know, you have arrived at the beginning of knowledge.

If you want your dreams to come true—don't oversleep.

Consolidated Philosophy

If you have great talents, industry will improve them; if you have but moderate abilities industry will supply their deficiencies.

While environment changes and material forces are altered—human nature remains the same, therefore human nature is what we must reach and inspire and direct.

Happiness is a very sticky substance. You can't spread even a little of it without getting some on yourself.



Be Sure You ARE COMPLETELY Protected

HERE are two ways in which your finances may be exposed to loss:

- (1) Through insufficient insurance protection if your property values have increased without a proportionate increase in coverage.
- (2) Through lack of a special form of insurance to cover some newly developed need.

You can be sure your requirements will be taken care of if you approach this agency to make a survey and provide you with policies in sound Stock Insurance Companies.

Do not postpone attending
to this important matter
Send us today.



SALMONS & WOLCOTT CO.

COUNSELORS

San Diego Trust & Savings Bldg.

Franklin 5141

Coughlin's Coughs

The Engineers held their monthly Golf Tournament at the La Jolla Golf Course on Saturday, March 11, 1939, and it was a grand success.

Listed below are the winners of this Tournament:

FIRST FLIGHT

1st Low Net—Hemphill	70
2nd Low Net—Moe	74
3rd Low Net—Rhodes	76
4th Low Net—Yater	79
Low Putts—Ekren	32
Low Gross—Sheahan	90

SECOND FLIGHT

1st Low Net—Kelley	74
2nd Low Net—Devlin	74
3rd Low Net—Leigh	76
4th Low Net—Achterkerchen	79
Low Putts—Weber	32
Low Gross—Watts	103
Farnsworth	103

THIRD FLIGHT

1st Low Net—Stout	66
2nd Low Net—Stacy	69
3rd Low Net—Robbins	73
4th Low Net—Rosenbaum	78
5th Low Net—Fowler	79
Low Putts—Eldred	34
McCabe	34
Low Gross—Hinckley	111

The winners of the Match Play Tournament held the past month are listed below:

Championship Flight—Freel.
1st Flight—Schwarz.
2nd Flight—Sutton.
3rd Flight—MacDougal.
4th Flight—Carlson.
5th Flight—Devlin.
6th Flight—Robbins.

The standing of the Engineers' Bowling League:

	Won	Lost
1st—Equipment	32	20
2nd—Loft	30	22
3rd—Armament	26	26
4th—Hull	25	27
5th—Power Plant	22	30
6th—General	21	31

The next Engineers' Golf Tournament will be held on Saturday, April 15, 1939, on the Coronado Golf Course.

To bear up under loss, to fight the bitterness of defeat and the weakness of grief, to be victor over anger, to smile when tears are close, to resist disease and evil men and base instincts, to hate hate and to love love, to go on when it would seem good to die, to look up with unquenchable faith in something ever more about to be—that is what any man can do, and be great.—Zane Grey.

Specializing in STAMPS

of the Western Hemisphere

A P P R O V A L S

LA JOLLA STAMP CO.

Box 333B • La Jolla, Calif.

Consair Rod and Reel Club

SIXTY-FOUR members of the Consair Rod and Reel Club attended their first Annual Stag Saturday, March 4th, at the Veterans of Foreign Wars' building in Balboa Park . . . and what an exciting time these fishermen had.

President Ronald Miller briefly told of the Club's activities during the past year and outlined plans for the ensuing year.

Our Club's "La Jolla sea-faring man," Hibert, very dexterously distributed the long-awaited prizes to the expert anglers of 1938 whose names appeared in a recent *Consolidator* for having caught the largest and heaviest pisces. "Chuck" then gave the boys a treat showing some splendid movies he took while cruising off La Jolla shores and the Coronado Islands in search of bigger and better fish. A *Tia Juana Bull* fight picture was included in "Chuck's Show", for some unknown reason. After the movies came a half-hour of drinking (coffee, etc.) and feasting. . . .

AND THEN

Came the moment these fishermen were waiting for . . . the Hawaiian dancers, Reri and her two able-bodied assistants. Les Crawford acted as master of ceremonies or somethin' and fishin' was far from the minds of all present for some time.

Our own Russian tenor Nicholas Tuvovsky had a hard time to get going, but finally at the close rendered three beautiful numbers which were very much enjoyed by the boys.

The Fishermen's quartet . . . Eddie Lang, Geo. Landy, Hank Roese and Walt Beyer gave several bar-room numbers while the boys were relishing the fine food and beer.

The officers of the club wish to convey their thanks to all who contributed in making this first annual party a success.

An invitation is extended to all *Consolidated* employees to become members of the Club and enter into its activities for the coming season.

Answers to Questions

on Page 1

1. Charles Martin Hall.
2. Dihedral.
3. Fairing.
4. Chromic acid.
5. 910° to 930° F.
6. Camber.
7. Airspeed indicator.
8. Aluminum, Copper, Manganese, Magnesium.
9. Pitot.
10. Zoom.

FINISH NEWS

By Al Griffith

SEEMS that the boys of the Finish Department have been very busy, for I must announce that we have in our midst two proud papas . . . both papas of boys.

Troy Sansing, sprayer, is one of the boys. He's boasting of a son weighing nearly 8 pounds.

"Chris" Ortel, doper, is the other fellow who's boasting. He now has a 7½ pound boy . . . says it wasn't half bad, and that he feels fine.

Albert Bell, also a doper, was strutting around last week. I asked him what the idea was, and he started to brag about a first grandson!

I don't know what is the matter with "Slim" O'Donnell, unless someone has been feeding him bird seed. It sort of makes a fellow wonder to see a black mustache singing high soprano.

Major Shusman, who is also big chief of the dipping department, says, "Boys, don't worry about anything for I am one of the country's best National Guardsmen."

Casey Jones of the final touch-up has a nice wood-working shop in his garage, with a drill press, circular saw, jointer, and even an air compressor for spraying. If anyone wants anything made, see Casey. He'll be glad to do it!

Among the gold diggers of 1939 we find "Benny" Leonard. He has been digging for some time. He says gold doesn't mean a thing. He just likes to dig around. Says Mrs. Leonard, "Here's a good chance to put in a new lawn." Or is it?

(Major Shusman and Al Griffith have something in common. They're both working mighty hard to gain their "Ham" radio licenses.—Ed.)

"H" NEWS

Who is the runger of the Experimental Bowling Team? It can't be the captain, because he scores 132 or less.—P.

Tom Bunch wanted to make a bet on Sally Booter. . . He didn't know that Eby had already used her up long ago in the glue pot.—W.L.

Has everyone seen those inventions of "Doc" Carson's in the Experimental tool crib? If not, he would be more than anxious to show them, and demonstrate their wonderful improvements. Yes, sir, and he is mighty proud of them also. It's too bad Doc's horse didn't do any better than 13th in the big race, as these modern brainstorms would certainly get patented.

—E. S.

A MECHANIC IS NO BETTER THAN HIS TOOLS

TOOL MOOCHERS, BEWARE—HERE COMES

A GUY WITH
GARRETT TOOLS



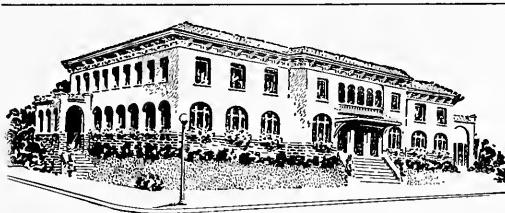
When you stock up on those slick Garrett tools, maybe you won't need a police guard for protection against tool moochers, but you'll surely have to learn to say "NO." Garrett has just the tools you need to be a better mechanic and the envy of your fellow workers.

GARRETT SUPPLY COMPANY

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MUtual 2286

Los Angeles



Unfaltering
Service

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MAUSOLEUM
CREMATION
SHIPMENT

The expense is a matter of your own desire

JOHNSON-SAUM COMPANY

Fourth Ave. and Ash St.

MORTUARY

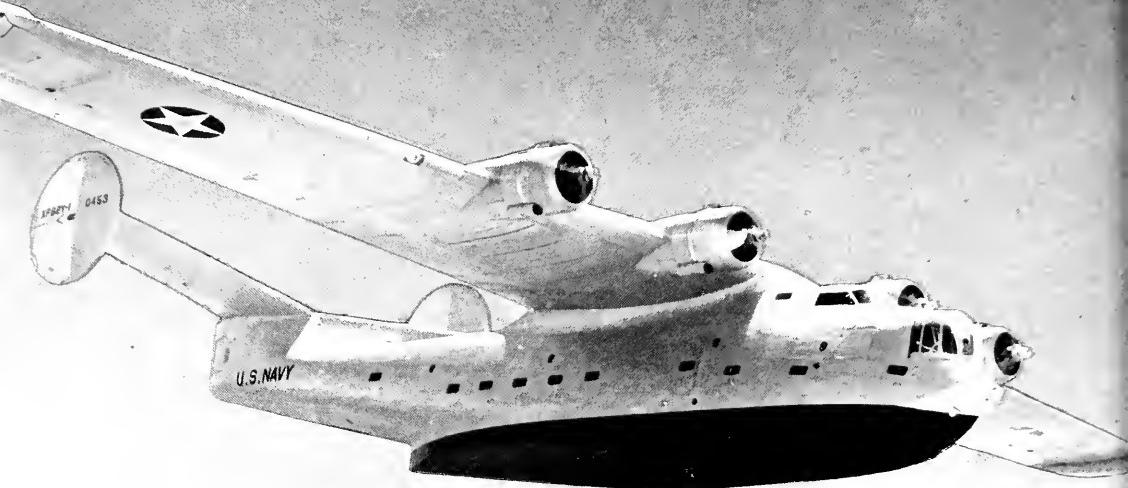
Phone, Main 6168

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Whiting-Mead		
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PURITY COUNTS WHEN YOU BUY MILK. Buy QUALITEE

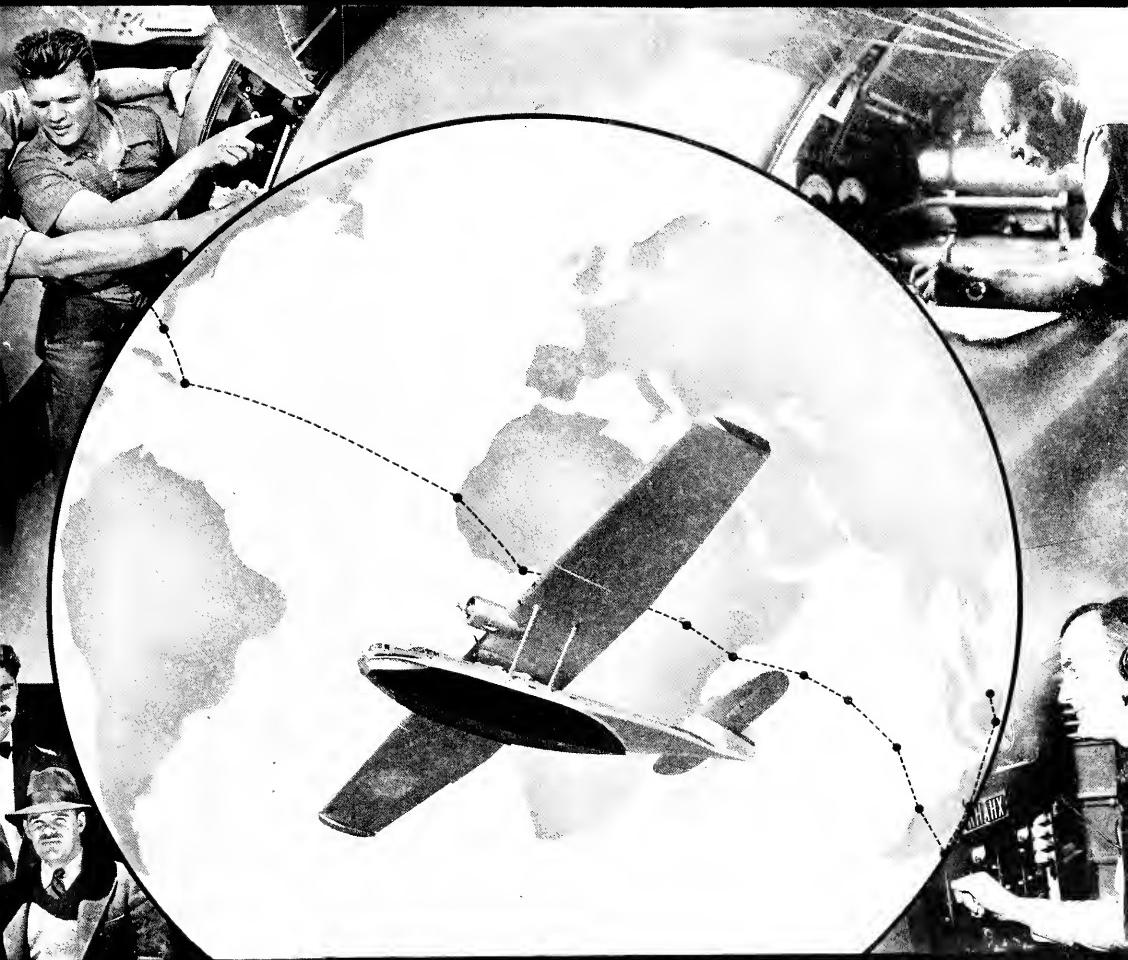


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MORE POWER
TO (and for) THE
U. S. NAVY**



**CONSOLIDATED
AIRCRAFT CORPORATION**
San Diego • • EST. 1923

CONSOLIDATOR



"THE 'GUBA' AND HER CREW START FOR HOME . . . THE LONG WAY 'ROUND.'

MAY • 1939

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VARNISHES
LACQUERS
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2911 University Ave. . Hillcrest 3110



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CREDIT TERMS
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J. E. DRYER, PRES.

IF MABEL
HAS THE MUMPS
Send flowers from
EXCLUSIVE
Florists
SIXTH and B STREETS
FRANKLIN - 6233

AERONAUTICAL I. Q.

(Credit yourself ten for each question correctly answered. Answers will be found on page 13.)

1. What new corrosion preventive is being used by the Navy?

2. At what temperature does bend alloy melt?

3. Name the acute angle between the chord of an airfoil and its direction relative to the air.

4. Give the minimum tensile strength in pounds per square inch of 24 ST sheet stock.

5. How are exposed edges, scratches and abrasions protected by the pure aluminum coating on alclad?

6. Where is the largest wind tunnel in the world located?

7. Name the material used in the "Solution heat treatment" of aluminum alloys.

By D. R. K.

8. Where was the first successful flight made in America of a flying boat?

9. Who is in charge of the Army Air Corps activities in the U.S.?

10. What does the abbreviation N.A. C. A. stand for?



He is not only idle who does nothing, but he is idle who might be better employed.—Socrates.



Wear Them at Work or Play!

Matching Outfits

Cotton Jean Shirt **1 00**
Cotton Drill Pants **1 29**

A new idea — combining smart style with plenty of wear! Sanforized shrunk! Vat-dyed! Shirt, 14½-17; pants. Sizes 30-44.

Shadow Stripe Style
Sanforized shrunk Jean and Drill in fast color taupe. Nearly tailored and reinforced for lasting service.

Army Twill
Tough cotton gabardine. Fully Sanforized shrunk. Fast color taupe. Bar-tacked at strain points. SHIRT 1.89 PANTS 1.98

Montgomery Ward
B St. at 8th Phone F. 7781

SAY YOU SAW IT IN
THE CONSOLIDATOR

CONSOLIDATOR

Volume 4

May, 1939

Number 5

New Duties

At the annual meeting of the Board of Directors of the *Consolidated Aircraft Corporation*, held on March 29th, last; Donald M. Carpenter, Co-ordinator and Production manager since '36, was appointed a member of the Board of Directors. Thus was added another link in his already large round of duties.

"Doc" Carpenter, as he is generally known to his wide range of friends and acquaintances, is no newcomer to either aviation or *Consolidated* airplanes, for that matter. A Naval graduate with 25 years of Naval experience, and a Naval Aviator since 1922, "Doc" Carpenter has been in practically constant contact with *Consolidated* and *Consolidated* planes since the building of the early N.Y.s. It was, however, only as late as '36 that he retired from active Naval service to accept a civil position as *Consolidated's* Co-ordinator and Production Manager. Thoroughly trained thru Naval Aircraft Inspection, flight and operation for the position he was to assume, Carpenter has found his natural bent in the work attached to the building of Naval craft here. Hence his recent appointment to the Board of Directors comes as a natural result of his co-ordinating and managerial efforts of the past scant three years. The addition of Donald M. Carpenter to the Board augurs well for the future of the *Consolidated Aircraft Corporation*.



Your Boy?

Three out of every five bicycles in San Diego are unsafe for night riding because of lack of safety equipment, according to W. A. Huggins, executive secretary of the San Diego Safety Council, who has just completed a survey of thousands of bicycles throughout the city.

"Despite the fact that the law requires a white light in front and a red reflector in the rear, children and adults alike take chances with their lives all the time by not installing such safety devices," Huggins said. "The cost is very small, in fact regular flashlights can be used in front by attaching metal clamps, while reflectors

cost very little. In any event, the added security more than offsets any financial outlay."

Huggins further pointed out that parents are most often to blame for this condition by not inspecting the bicycles their children ride. He said automobile drivers shrink from the thought of driving without lights and yet never pay any attention to the safety of their children who ride bicycles at night.



Associated Glider Clubs

The dream of a two-place sailplane in which every club member could fly, is now a reality. Since March 8th the "Grunau 8" has been used every week at Torrey Pines. The ship is very stable and of rugged construction, being designed as an intermediate trainer. Yet it has flown to 1,100 feet with two up on a 15-mile-per-hour slope wind. With the aid of a cloud we once rose to 1,500 feet where the cliffs were only 200 feet high.

The "Grunau 8" is stored at the field and takes only 15 minutes to set up, so flying need not be limited to week-ends for those who work. Hence: wives and mothers of glider fiends: when the wind is good, don't worry about your "wandering boy tonite"—he'll just be out at Torrey Pines, soaring.

Jerry Lytell.



March 24, 1939.

Memo to: Frank Learman
Re: "Consolidator" Advertising.

My wife reports the following interesting conversation heard recently (eavesdropped) in a downtown restaurant between two business men discussing *Consolidator's* latest business:

1st B.M. "You know that little magazine, "The Consolidator" which they publish?"

2nd B.M. "Yes."

1st B.M. "It costs me about \$19.50 a month to advertise in it, and I get more business from it than from all my other advertising."

Sounds like a nice plug, which might be of value in selling other advertisers.

F. W. Devlin.

Question Box

It has been suggested by Jack Kline, that the *Consolidator* run a "Question Box Column," the idea being for employees to send in questions pertaining to any phase of aviation or aviation production. This probably will result in a flood of questions to be cleared up for the readers. It may result in far more questions than we can handle, but we welcome the idea. Don't hesitate with your questions! Shoot 'em in thru the news collector in your department. While we may not be able to answer each and every question, still don't hesitate to send yours in, because in this manner we will learn of subjects which have the greatest interest for the largest number of *Consolidator* readers. Knowing this, we'll do our "ding-dash" to arrange for an article on this subject by someone familiar with it and thus clear up a whole slew of questions at one time. This "Question Box" idea ought to open up many interesting phases of aviation and uncover many unusual points. All questions must be signed by name and clock number . . . otherwise they will not be answered.



San Diego Flying Club Scores

The team from the San Diego Flying Club defeated the Alpha Eta Rho Fraternity of S. D. State College at the Linda Vista Airport meet Sunday, April 23d with a total score of 4730 points. The events included bombings, spot landings, balloon bursting and a novelty race. Clarence Prescott won 1st honors in the acrobatic competition.

Don Frye acted as chief judge. Field judges were Jack Baker, Don Frain, Merle Parker, Al Griffith and John Robinson. The S. D. Flying Club team included, L. W. McCannon, Capt.; Orv Hubbard, Tom Butterfield, Walter McLain, Ralph LaVine, Eddie Burch, Henry Boffe, Al Griffith and Don Garrett.



A man is never astonished that he doesn't know what another does, but he is surprised at the gross ignorance of the other in not knowing what he does.—Haliburton.

Sheet News

By Connie Seaderquist

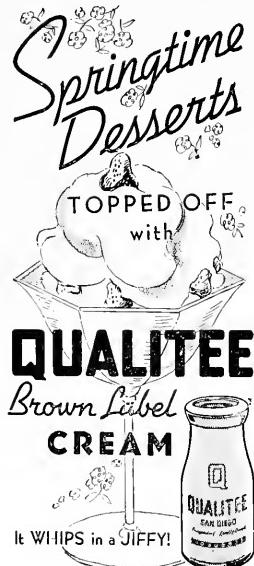
IT is hoped that Lou Miller will invest in a one-pint thermos bottle and get rid of the half-pint one he has, as the boys at the desk run short of coffee themselves, as he sponges from them . . . says Harald Hahn.

Congratulations! The added expansion of Dick Bartlett's chest now 'days is due to the fact that the Bartlett "Pear" is now three. They've added a little chap to their family tree. Born March 25th at Mercy Hospital, he weighs 8 lbs., 3 oz. Name: Richard Wrelton Bartlett.

The T's have it! "The terrifically tittering ticklish terrible 'Terrell,' the tempting tid-bit of the tyrannical tormenting ticklers, thoughtlessly tosses tools toward the tormenting ticklers!" Nos. 1737 and 1777, Bartlett and Mounts.

The Bench and Weld Departments have a puzzle on their hands which defies solution to date: Benny Kiegle, our genial and agreeable personality, parks his car at the far end of the farthest parking lot and walks half a mile morning and night. Need exercising that bad, Bennie? No. 2925.

From the little spark may burst a mighty flame.—Dante.



... Adieu -- But Not Goodby

CONSOLIDATED has announced the sale of the manufacturing rights to a long and splendid line of small trainers and observation planes that have formed an indelible background in the early growth of the Corporation. For sometime the pressure to place the *Fleets* and other training planes once more in production, has been growing. Many training schools and aircraft manufacturers have approached *Consolidated* with this thought in view. Feeling that the interests of *Consolidated* would be best served by a concentration upon larger types of aircraft, yet not wishing to desert the hundreds of owners who are still using the smaller airplanes, the decision was made to sell the rights.

From a long line of candidates, *Consolidated* selected the Brewster Aeronautical Corporation of Long Island City, New York, to carry on this work, the sale being officially completed on April 6th. The contract consideration was not revealed, but it was announced that manufacturing rights to the *Fleets*, Model 21 (PT-11, PT-11C, BT-7), PTs, NYs and O-19s for the U. S., its territories and possessions were included in the deal. Fleet Aircraft, Ltd. of Canada retains the foreign rights to these planes.

It is safe to say that the *Consolidated* Series of designs now passing into other hands has trained more present-day flyers than all others combined. The PTs and NYs, built under the supervision of Col. V. E. Clark who was responsible for the famous Clark Y and U.S.A. series airfoils, were the first training planes used by the Army and Navy to employ steel tube fuselages and to have crash pads and instruments mounted out on the cowling to prevent injury in case of a crash. The PT-1 was designed and entered in the army competition for a successor to the historic old "Jenny." Two-seated, convertible land or seaplanes with performance, appearance and streamlining sacrificed for what was wanted most, namely, ruggedness, simplicity and neutral stability, the PTs and NYs filled the bill. The Army bought 220 PT1s with water-cooled Hisso engines and 250 PT-3s with Wright Air-cooled engines, while the Navy took 127 NY-1s and 178 NY-2s. Being rugged, accessible and easy to get in and out of, they established one of the outstanding records of safety. Of a number sold to the Cuban Government in '28 three-quarters were reported still in operation late in '37.

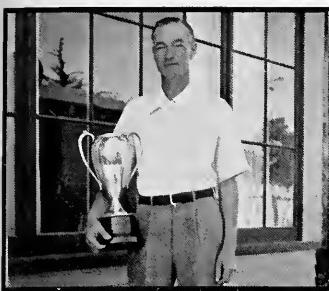
Three production models of the O-19 series, the O-19B, O-19C, and O-19E were produced and some 170 planes of this standard observation type were sold to the Army. The fuselages and control surfaces were of corrugated dural; the wing structures metal, fabric covered. Powered with a Pratt and Whitney Wasp of 450 H.P. the high speed was 152 M.P.H. The plane was also adapted for use with floats.

The *Fleets* were an outgrowth of the experience gained in the design and construction of training planes. A two-place, open cockpit staggered biplanes with a span of 28 feet and of simple and rugged design, nearly 1,000 *Fleets* have been sold throughout the world. Used on floats, wheels and even skis, with powerplants ranging from 90 to 175 H.P., the *Fleet* is very well known to all. Besides domestic sales, *Fleets* have been sold in Argentina, Brazil, Spain, China, Portugal, Paraguay, Turkey, Roumania, Yugoslavia and Mexico. Mexican Army pilots hopped six *Fleets* from Buffalo to Mexico City, where, at high altitude (7,100 feet), and heavily loaded with armament the *Fleets* have been accumulating thousands of hours of time to their credit. The first airplane to be hooked onto and released from a lighter than air craft in flight was a *Fleet*.

The variously designated Model 21s (21-A, C; PT-11's and the BT-7, etc.) are single-engined, two-place trainers with a 31½ foot span and 27 foot length. The gross normal load of the PT-12 (basic Trainer) being around 3,000 pounds and the PT-11 (primary trainers) somewhat less. The models varied primarily in engines. The 21-A being a low powered model and the 21-C (manufactured for the Colombian govt.) a high powered engine. These were the first planes to employ ball-bearings for all bearings. The first plane was started from scratch, static tested and ready for demonstration in just 8 weeks! An order for 46 followed.

Thus, briefly recorded, are the planes of *Consolidated* design to which on April 6th we bade adieu, but not goodbye, for their construction and their refurbishment in the United States will be amply taken care of by Brewster Aeronautical Corp. of Long Island City, New York.

Dick Emerick wishes to express his appreciation for the kindness extended on the part of the fellows during his recent illness.



BOWLING ON THE GREEN

ON entering Balboa Park from Sixth Avenue, and turning left under the sign "Bowling Green" at the west end of Cabrillo Bridge you will encounter two square bowling "lawns" one of grass, the other marl (decomposed granite). These lawns are 120 feet square, surrounded by a shallow ditch. Around the outside of which is banked strip of grass, then footpaths dotted with seats for spectators; a most beautiful setting with tall eucalyptus trees on two sides, beautiful palms on the third and the Club House of the San Diego Lawn Bowling Club on the fourth or east side, on the edge of the Palm canyon.

This beauty spot is unknown to most San Diegans, and here is played probably the oldest of British games, namely "Lawn Bowling." Most readers of history have read of how Sir Francis Drake when told that the ships of the Spanish Armada were sighted, remarked that they could wait till he finished his game of "Woods."

Practically every town in Great Britain and Ireland has its bowling green, some of these being hundreds of years old, in fact the one Sir Francis Drake used, is believed to be still in use. The climate being so mild over there, the adequate supply of moisture, and constant care give these lawns the appearance and almost the texture of beautiful velvet.

The game of Lawn Bowling is comparatively new in the United States, and although purely amateur, and seldom advertised, is gaining in popularity daily, due to its fascinating allure, its mild form

of exercise in the fresh air and sunshine. There are twenty-two clubs in Southern California from the Los Angeles area to and including San Diego and Coronado.

The Bowls (not balls) are designed with a bias, so that they cannot travel in a straight line, and when rolled describe an elliptic curve, and the object of the game being to get as close as possible to the small white ball, known as the "Jack" (about the size of a pool ball).

The game may be played as "singles," "doubles," "triples," or "rinks," of four players, triples being the most popular.

The lawn is divided into strips or "greens" by markers at each end, each green being fourteen feet wide and of course one hundred and twenty feet long with a rubber mat at each end from which the players bowl, a triples team comprises a Captain or "Skip" second skip and leader.

When play begins, the opposing skips take their places at the farther end of the green. The leader who wins the toss, rolls the Jack (small white ball) and the

skip centers it without changing the length of throw, then each leader in turn rolls three bowls, the second skip then roll three each, the skips, meanwhile directing them where to place their shot. After the four men have bowed, they change ends with the skips who in turn bowl. By the time the skip have to bowl, there are 12 bowls around the Jack, so that they have to use great skill to get close to the Jack without moving up any of their opponents' bowls.

Each week during the year, individual clubs who are members of the Southern California Lawn Bowling Association, hold a tournament according to a schedule previously arranged. There are also four major meets held by the Association, besides those held by the State Association, and the International Congress.

Each club holds its own membership tournaments to decide the "Singles" Champion, and best "Doubles" and "Triples" teams.

In this respect J. E. (Ernie) Hodgson of the Wood Shop, won the cup and the San Diego Lawn Bowling Club Singles Championship for 1938-39 after playing through five rounds of elimination games.

It has been conceded that this was quite an accomplishment as Ernie had only played about a year, and his opponents were all old timers, one, twice winner, another the 1937 champion.

Campbell Murray and Joe MacKean are also lawn bowlers and members of the San Diego Club.

FINISH NEWS

By Al Griffith

Spring cleaning is almost over in the paint shop. It's now all white and looks swell. One of the finest in the world. Take a look and see for yourself.

Sterling Riffe of Final touch-up spends his week-ends building airplane models and new designs. He turns out some very nice work too. He is working on a new concrete airplane.

Orv Hubbard, chief dope-er of the dope shop has a new house trailer and is getting spring fever. Hope he can hold out until Friday!

C. E. (Myrtle) Danner of Final touch-up, invited Auntie Iverson and Grandma Stewart to go deep-sea fishing again. He thinks you have to go three times before you catch any fish. They have a lot of fun, anyway. Last time everything was going swell until Danner started to eat the bait. (He's going collegiate. Says he can kiss fifteen mermaids in ten minutes!). The biggest catch of the day occurred when Stewart and Iverson pulled Danner out of the pond. The end of a perfect day came when they were seen with a case of beer, fishing off'n Crystal pier.

TUBE BENDING

By Danny Whorton

We call him "Blackie". Anyone who reads the funny papers will recall how Pa Perkins was explaining how someone got a black-eye by breaking the string on a bundle. We have a certain fellow in our department, not mentioning any names, (his number is 2806) who came to work with one such black-eye. He had no explanation, but I think we can be safe in saying it was not from breaking a string on a bundle!

Bert Freakley is busy with plans for his new home which he is intending to have built. We wonder if he will make many offsets in his hallway (or any part of the house) or if he will leave it straight like our tubing is not?

The countenance is the portrait of the soul.—Cicero.

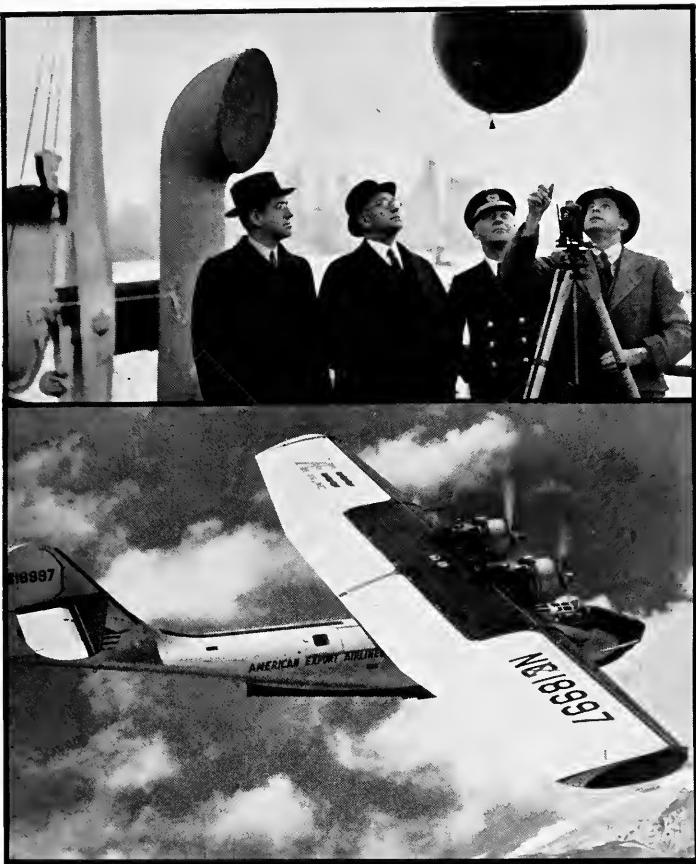
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Consolidated Plane Surveys Atlantic

AMERICAN Export Airlines, subsidiary of American Export Lines, operators for the past twenty years of the famous "Ex boats" plying between New York and Mediterranean and Black Sea ports, shortly will begin survey flights over the direct route to Horta in the Azores, thence to Biscarrosse, France's new trans-Atlantic airbase southwest of Paris, and on to Marseilles.

American Export Lines will be the first established steamship company in the North Atlantic trade to engage in flying boat operations. Of this new airline W. H. Coverdale, President of American Export Lines says: "We don't regard American Export as a steamship company going into a new business. We have been in the transportation business across the Atlantic with steamships for the past twenty years. In supplementing our services on the seas with flying boats manned by experienced

men in this type of craft, the company is following a natural traffic trend to render a complete transportation service to the traveling and shipping public. Full resources of the steamship operations will be put behind the projected air fleet. This embraces an international organization of trained men and a fleet of eighteen steamships moving along the route to act as weather reporters, navigational checkers, and radio stations. The average distance of any one of these seagoing "home ports" is approximately 500 miles from a seaplane flying the route. Since the hop from New York to Horta is 2,400 miles, the presence of eight or more boats along the route and in constant radio contact is of inestimable value in any possible emergency."

The survey plane to be used is the *Consolidated* model 28 now undergoing testing here. It has been equipped with all the latest instruments for long over-water

journeys and its sole mission is to gather scientific information on navigational and meteorological conditions along the route, to check and cross-check findings, and to mould data and experience into a routine operation between planes and ships.

With New York as the home port, it is estimated that the crossing to Biscarrosse, including the Azores stop, will require 30 hours. Immediately following the proving flights, it is planned to acquire a sufficient number of flying boats to operate two round trips a week, carrying mail and express. Based on data and information gained through the operation of survey and proving flights, plans and specifications will be drawn for the construction of long-range aircraft designed for the carriage of forty or more passengers in addition to mail and express.

In command of the model 28 survey plane will be P. J. Byrne who has been flying seaplanes since the war in all waters from the Far East to the Azores. Most of his experience has been with multi-engined craft. In his flying laboratory he will be assisted by T. S. Terrill, first officer, copilot and co-navigator; M. C. J. Doyle, second officer and engineer; W. W. Ehmer, third officer and radio operator; and R. B. Carlson, fourth officer and assistant engineer.

The officers of American Export Airlines, in addition to Pres. Coverdale, are: John E. Slater, Executive Vice-President, who will coordinate the steamship and flying boat operations; James M. Eaton, Vice-President, who has been an aviation executive for 12 years; H. M. Gillespie, Secretary and Treasurer; and D. G. Richardson, formerly operations manager of a division of Pan-American Airways, as operations manager. Dr. Jerome C. Hunnsaker, head of the Department of Engineering at M. I. T., is aeronautical consultant. The directors of the airline are W. H. Coverdale, John E. Slater, Thomas Hitchcock, Jr., Joseph A. Thomas, Roland Palmedo and Chas. U. Bay.

During the year 1938 *Consolidated* used sixty-one thousand, three hundred and ninety-eight gallons of finishing material in the production of aircraft exclusively on the airplanes themselves. The largest single gallonage was 22,705 gallons of dope and lacquer thinner. The second was 11,150 gallons of clear nitrate dope. Included in the total are: clear acetate and nitrate dope, pigmented dope, clear and pigmented lacquers, varnish (Bakelite), spar varnish, primer, acid proof paint, bitumastic solution, marine glue and thinners.

GUBA HEADS WEST . . .

WITH an itinerary that reads like a work of Kipling, Richard Archbold and his crew in the *Consolidated Twin-Engined* flying boat, the "Guba", will depart from Lake Habbema in the interior of Dutch New Guinea probably shortly after the appearance of this issue. The crew, consisting of Richard Archbold, Russell R. Rogers, Lewis A. Yancey, Ray Booth, Gerald Brown and Stephen Barrrinka, who made the flight to New Guinea in June of last year, will make the return journey to San Diego. This return flight will be made the long way around, thus completely encircling the globe. Much of this flight will be made by blazing sky trails over previously unflown waters. Along a portion of this route the Australian Government has expressed a keen interest in making a survey flight. In fact, they have completed arrangements whereby two additional persons: Captain P. G. Taylor, who has long advocated a survey along the route known as the "Reserve Empire Air Route" across the Indian Ocean, and Mr. J. Pervival, correspondent, will become members of the flight staff.

Returning first to the American Museum of Natural History base camp at Hollandia on the north coast of New Guinea, the start of the return flights is scheduled to begin from there on May 15th. Then the course will be southward toward Australia, stopping briefly enroute at Port Moresby on the south coast of New Guinea, then Sydney and Melbourne, Australia and on around to Onslow on the west coast. Here Captain Taylor and Mr. Percival will board the Guba. Captain Taylor was a colleague on several flights of the late Sir Charles Kingsford-Smith, is an excellent navigator and one of Australia's greatest flyers. Mr. J. Percival is a well known Sydney Journalist.

Taking off on the first leg of the leisurely survey of the new Indian Ocean Air Route, the augmented crew will fly to the romantic little island of Cocos, one of a bit of isolated coral outcroppings discovered in 1609, which became a British possession in 1857. The population is approximately 1,300. It was here that the famed Charles Darwin spent considerable time studying corals. The distance from Onslow is 1,435 land miles.

The second stop is Diego Garcia, some 1,717 miles nearer the African coast. At each of these island stops time will be taken to make aerial and land surveys of the potentialities of the lagoons and land, for

the establishment of air travel bases along this route. Diego Garcia is in the Chagos Islands which also belong to Great Britain. This spot is in the heart of the Indian Ocean some 1,000 miles south of Ceylon, India, well off the track of the steamers. There are but a dozen small islands in the group, populated by about 500 persons, mostly negroes. Diego Garcia is 13 miles long by 6 wide, with an excellent lagoon for landings and take-offs.

Over another stretch of ocean the Guba will wing its way 1,192 miles to the Seychelles Group of Islands, a relatively important archipelago with a combined total of 156 square miles and a population of some 30,000. The largest island of the group is Mahe, 17 miles long and 7 miles at its widest, with a good harbor. The Seychelles Islands were known first to the Portuguese and have been marked on the maps since 1502. They became British in 1814.

From Seychelles to Mombasa (Kenya), the flight will be over an additional 1,110 miles of ocean. Here on the African east coast, the flight of the Australian representatives will end.

From Mombasa the next hop will be across land to Kisumu on Lake Victoria in Mid-Africa, thence on overland to Lagos on the south coast and on across land to Dakar on the African west coast.

From Dakar, the longest projected hop will begin. This will be flown on a line slightly north of due west, to St. Thomas in the West Indies. The normal trans-Atlantic crossings by plane are generally made from this point by flying to the eastern tip of South America which lies to the southwest. The arrival in St. Thomas, will, however, be more direct and bring the Guba within easy striking range of Miami, Florida, the next scheduled stop on the long jaunt. The hop from Miami, to San Diego is of course a familiar one to the crew and the Guba.

For a year this famous *Consolidated* model 28 has been acting as the very backbone for the American Museum of Natural History's expedition, by making possible transportation across impenetrable jungle, this contributing a remarkable aid for the furtherance of scientific research in the tropical island of New Guinea. Tons of supplies were transported to the inland bases for the use of the expedition's parties. Lifting heavy loads repeatedly, this *Consolidated* model 28 made hundreds of trips inland, with many of them to the lake Habbema, whose surface is 11,500 feet

above sealevel. Reaching this lake overland with such loads is impossible. The men of the expedition, which comprised well over 100 persons, were carried to the advance bases, on the lakes and rivers by the Guba, saving untold time, not to mention avoiding practically impossible surface travel conditions and hardships.

A whole colony of natives, previously unsuspected as to existence and following a peaceful existence completely shut off from the world by the impenetrable jungle, was discovered thru the Guba's scouting flights. Incidentally, during its stay in New Guinea, the Guba and her crew played a dramatic part in the rescue of persons of a stricken vessel some 75 miles from Hollandia.

From the schedule set for departure, the indications are that the Guba will be back in San Diego once more by July 15th. This projected flight on around the world will be a fitting demonstration not only of the capabilities of the airplane, but of how small the world has been shrunken by the advent of aircraft of modern design and construction.

HULLabaloos

By Hep

"Red" Chaplin's seventeen-months-old boy fell out of a two-story window the other day. Luckily he landed on a flower hedge and received only a black eye. "Red" says, "He's tough like his old man."

Congratulations to Mr. and Mrs. Clarence Halsey on the arrival of a fine baby girl, Friday, April 7th.

"Wildcat" or "Bring 'em back alive" Butzin trapped and brought home a real live, fullgrown wildcat a couple of weekends ago. What a man!

Thord Powers, of the Wing Department, has been jumping the quail season quite a bit lately at Alpine. At least he goes up there every week-end.

Congratulations to Don Wheat of Engineering from the boys in the Hull Department, on his recent marriage to Eleanor Mitchell of Oakland, Calif.

"Bud" Shimmin has quite a severe temper. Especially on a golf course and especially on the seventeenth hole. How about it, Bud?

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only, in rib-stitching on a plane you do it on purpose. (And incidentally a better job.) Ribstitching serves to keep the fabric in place, distributes the air loads, prevent chaffing and ballooning. In fact it makes the fabric stay put. Much reinforcing is incorporated along with the rib-stitching. A stout tape runs between the rib stitches and the fabric, and then over this a pinked tape is doped in place to further increase its effectiveness in strength and also to make the outer surface smooth. Yes Mam, any of the covering boys'll tell you that "pinned" tape doesn't refer to its color. In fact if you have any plain or fancy pinking to be done, they have an electric machine to do it with.

But to get down to the real "he-man" fabrics . . . there are the waterproof ducks, canvas and imitation leather used. Motor covers, propeller covers, map holders, curtains (light proof ones, none of those

WHAT, NO HOUSE?

WHILE many a good *Consolidated* employee trips off to work each morning, there is possibly delight in his heart in the knowledge that he is leaving the household work behind. (That is, of course, assuming in the first place that he thinks of it at all and secondly that he regards household tasks as work.) After all, isn't that what he's leaving the Mrs. behind for? Housework? Poof! That's a woman's work. Airplane work? Ah, now you're talking . . . that's a MAN's job.

But if he's caught on a day off and has to do a bit of housework, vacuuming or the likes of such, while socking the little pill on the green is what he'd rather be doing . . . that takes on the semblance of work to be sure, but it's still in the category of woman's work. Yessir, that's just what it is . . . until you start to check up. Then you find out that virtually all the prime operations about the house come under the list of work to be handled in the building of airplanes.

In the regular direct work contributing to the production of planes you will find many of the household operations. You'll find such items as sewing, ironing, vacuuming, cleaning, washing windows, even washing delicate "prints," etc., and the list might easily include cooking, if the

testing of the electrical hotplates were carried just one step farther.

Sewing, for instance, is no small item and it's a highly important phase in building an airplane. On the trailing edges and control surfaces of the PBYs are thousands of yards of fabric. It's a long staple cotton, unbleached, uniform and of excellent texture. In fact it makes quite nifty shirts, tablecloths and the like. Mostly it is used in 90-inch widths to save sewing. In the covering of the trailing edges there are miles of triple-stitched seams to be made. In the coverings for the movable control surfaces there is more of this machine sewing and in addition, quite a bit of hand sewing, for all these are completely sewn in more or less like pillow ticking. To accomplish this the "baseball" stitch is used. It's a baseball stitch because this is a "he-man" occupation. Anywhere else, it'd be "feather stitching."

There are probably many of our "seamstresses" who don't know how to do hem-stitching, but on the other hand there are probably many more housewives who don't know the first thing about "rib-stitching", so there! And these two are not related. Ribstitching is just like sewing a dress on one of those adjustable dressmaking forms with a lattice-work of steel rigs and loops,

flimsy-wimsey things) seat covers, bunks, etc., are but a few of the range of fabric sewing items that are made for our airplanes. And zippers! Yes, indeed! there are some 96 of these employed on each PBY.

In the gentle art of manipulating a sewing needle there are some tricks which perhaps even the feminine seamstresses aren't quite up with: Making a 12-inch needle come out on the other side where you can't see it and exactly where you want it to come out, is one, and making speed with a curved needle is another. If there's a housewife who hasn't ever tried to handle a curved needle (one of those double-pointed affairs with a tendency to turn at the wrong moment and always leave a point in the way of the hand) she ought to try her hand at it for darning socks sometime!

The ironing is done on a small mangle, which is a rotary ironer that is somewhat larger than those being sold the housewives these days. This mangle is used for a number of purposes, but originally the idea was to iron out the wrinkles in patches. Patches, unlike patches at home, aren't sewn into place. They're doped into place, mostly as re-enforcements about holes in the fabric. To keep the edges from

fraying out, the patch is first given a coat of dope and then cut to shape. It becomes somewhat stiff in the process of doping and is apt to get wrinkled during the subsequent handling. The iron takes the wrinkles out.

Vacuuming is another highly important job in building all-metal boats. During the building operations, thousands of holes must be drilled and numerous other operations make for the accumulation of much loose filings, drilling, dropped rivets, nuts, washers, etc., in hard to reach portions of the complex structure. To get them out and to be sure of getting them all, vacuum cleaners with plenty of "pull" are employed. Little bits of material left in the fuel tanks, for instance, might cause considerable trouble later in flying, so the vacuum cleaners go after every bit of it. It is also necessary to completely remove these chips, etc., so that the protective coats of paint will effectually accomplish their

ations prior to the anodic process. Then the Kelite is washed off in clean boiling water and followed with a drying. To remove oil from steel parts, another solution is used. Simply dipping it in the agitated solution and allowing the part to dry removes all oil. To cleanse down to bare steel, sandblasting is employed. Sandblasting removes all stubborn scale from heat-treating and prepares the surfaces for plating. It's not especially recommended for cleansing dishes in the home. It is, in fact, rather tough on them, although you may have some glassware that has been sandblasted. (To etch a design on the surface.)

When the scale and surface dirt has been cleaned off of the steel parts by sandblasting, the steel parts have a soft grey color. It is in this condition that they are in excellent form for the Magnaflux testing method, because the black iron dust employed shows up clearly against

with these little cotton dresses the ladies wear about the house . . . not at all. The washing of prints takes place in both the photographic laboratory and in the blueprint department. It's almost always "blue" Monday in the blueprint department and it lasts all week long. The washing of prints in the photo-lab is a more spasmodic affair, but like a woman's work it is never done.

In all probability the list of operations in the building of *Consolidated* planes which parallel household operations with a marked similarity could be enumerated and extended still farther. But to do so might place some of our fellow-workers in a rather tight spot: Just imagine what a small chance Mr. Hubby has when he comes home at night and finds that Mrs. Hubby has laid out some nice seamstressing for him to do while she and the baby trot off to a movie.

Says he, "But, Honeylamb, I know

WORK ?

mission. The method of vacuuming is both fast and thorough.

And here come the soapsuds. These are employed when the large integrally built gasoline tanks in the wing center sections are tested. All openings and vents are plugged and a pressure of three pounds of air introduced into the tanks. Then the soap and water solution is carefully brushed over every inch of the outside of the wing adjacent to the tanks. If a large leak is present it bubbles profusely. If it's a small one the bubbling makes a white spot of minute bubbles and is a tell-tale sign that that particular part of the tank needs attention. The proper method is applied to the ailing spot and the soapsuds test again applied. It isn't long before there's not a bubble in sight and the tank is perfectly gas-tight. This might be called "cleaning up a tank" since the soapsuds so effectively allow the leaks to be cleaned out of the tanks.

But cleaning goes on in several ways besides this. To insure that the anodic process will effectively cover every inch of the surface of the metal to be treated, it must be thoroughly cleansed before immersion in the acid. For this cleansing, Kelite is used. It attacks the oils and surface dirt accumulated during the handling oper-

the grey surface to mark any hidden flaw. The sandblasted surface also has an excellent "tooth" for painting and for the more recent process of metal spraying.

Washing "prints" has nothing to do

nothing at all about sewing!"

"Don't tell me that!" is her fast rejoinder. "Why right here in the *Consolidator* it says . . . etc., etc." (Perhaps too many cats are out of the bag, already!)



OVER the last 5 years some new materials have played increasingly important roles in aircraft construction and design. These materials are distinguished as worthy of note because they are synthetics; that is, compounds not occurring in nature, such as iron, copper, rubber

times used, just as in the production of rubber compounds, so that these figures must not be taken as valid for all varieties of the synthetics. All do not exhibit the same degree of resistance to the action of acids, alkalies, and petroleum products or ultra-violet light. Specific compounds for

properties, from those of rubber.

SYNTHETIC PLASTICS

Plastics in many forms surround us in everyday life. We push plastic buttons to warn a pedestrian we are in his way, and to ring our neighbor's door-bell. Plastics form instrument and vanity cases, ash-

MODERN AIRCRAFT MAT

latex. They fall into 5 classifications as follows: substitutes for rubber, synthetic plastics, tool materials produced from metal powders, glass fabrics, and magnetic alloys. Brief glances at some of the characteristics of these substances may be of interest. We use some of them; others have as yet only a potential value for our product.

SUBSTITUTES FOR RUBBER

Beside aluminum and magnesium alloys, the synthetic rubber-like materials are perhaps of most significant use in aircraft construction. These rather prosaic-looking elastic sheets enable us to build fuel and oil tanks which are integral parts of the aircraft structure, thus promoting a very appreciable reduction in weight. Moreover, their behavior upon exposure to oil and gasolines at varying temperatures is such as to maintain leak-proof seams and joints over a service life which is equal to the life of the aircraft.

The best known of the rubber substitutes are Neoprene (of which about 100 lbs. per PBY are used by CAC), Thiokol and Koroseal. These are trade names and may not indicate the chemical nature of the substances they represent. In many instances the first costs of these materials are higher than the cost of rubber, but their uses have multiplied with great rapidity in applications where their substitution for rubber compounds has resulted in better and longer-lived products.

Typical applications: gaskets, seals, tubing for carrying industrial chemicals, fuels and oils; gasoline-pump hose, vibration-absorbing blocks (aircraft instrument panels, for example), pump diaphragms, tubing for transmission of gases, printing ink rollers and printing plates, electrical cable insulations, liquid-proof clothing, power transmission belting, leather cements, varnishes, protective films in plating baths.

Representative values for some properties of these compounds are given in Table I, in which rubber properties are included for comparison. The tensile strengths and elongations may be varied over comparatively wide ranges by changing the filler chemicals and the curing

specific ranges of application are provided by the manufacturers. Koroseal, for instance, is thermoplastic according to its manufacturer's literature, and therefore is limited to use below temperatures of 150° F. Thiokol compounds are produced in the form of molding powder, which has found extensive application in the printing industry. So far as the writer knows, the other substances, Neoprene and Koroseal, are as yet unsuited to this purpose. Great improvements in properties have been made in these materials since their commercial introductions. Many readers will remember, for instance, the odor of Thiokol which *Consolidated* used some years ago. The odor is a thing of the past, thanks to the chemists!

TABLE I. REPRESENTATIVE PROPERTIES OF RUBBER SUBSTITUTES

	Rubber	Neoprene	Thiokol	Koroseal
Unit weight, or Density (lbs./in. ³)	.062-.065	.050-.065	.060	.050
Tensile strength (lbs./in. ²) approx.	3500	4000	1200	7500
Elongation (%) maximum	700	—	750	450
Heat conductivity (BTU/hr./ft. ² /in.°F.)	1.13	1.45	—	—
Electrical Resistivity (ohms/cm ³)	10 ¹⁶	1.5x10 ¹²	—	—
Electrical breakdown value (volts per 0.001" thickness)	1200	860	—	150
Top operating temperature (°F.) approx.	195	175°	180†	150

*Life at 200° F. approx. 40 days, at 250° F. approx. 8-9 days.

Expands about 10% in 92 octane fuel.

Expands about 15-20% at 212° F. in lubricating oil.

†Shrinks about 3-6% at 212° F. in lubricating oil, for some compounds.

Neoprene, Thiokol and Koroseal, are products of what chemists call "polymerization" processes. That is to say, the weight per molecule is increased and the arrangement of atoms in the molecule changes, under suitable conditions of heat and pressure, without any change occurring in the chemical composition of the substance. For example consider Neoprene. Its basic compound is called chloroprene, made up of a certain combination of hydrogen, carbon and chlorine. Under closely controlled conditions of heat and pressure, the atoms of these substances rearrange themselves to form neoprene, which is a new substance having different properties than has chloroprene, even though there is the same amount of each basic element as before. (See Figs. 1 and 2.) It should be mentioned that the synthetics discussed are not "synthetic rubbers;" their chemical constitutions are dissimilar, as are their mechanical and electrical

trays and soap-dishes, pencils and toilet articles, and when one is so unfortunate as to spill his drink, he finds often that the table top is a plastic that is impervious to alcohol, and to fruit juices. But in aircraft there are windows, windshields, enclosures of various sorts, molded handles, insulation and mechanical parts of electrical apparatus: synthetic plastics all, some old and some just out.

There is now a number of families of these materials, divided into 2 general groups: thermo-setting and thermoplastic. The thermo-setting plastics are those in which chemical reactions occur under controlled conditions of heat and pressure, that make the finished product resistant to heat thereafter. The thermoplastics are

those which soften and in some cases flow, upon application of heat to the finished product. Urea compounds like Plaskon and Beete exemplify the first group, of which Bakelite (a substance made from phenol and formaldehyde) is perhaps the earliest commercial product. Celluloid, Plexiglas, and Lucite, are representative of the second group. Table II lists average properties of some of these.

The "phenolic materials" so familiar to those who work from *Consolidations* is no more than our old friend bakelite, which also goes under a number of aliases, some of which are Textolite, Micarta, Formica, Durez, Synthane. These are all laminated or molded of various fillers impregnated with bakelite resins. They meet us in pulleys, terminal boards, bushings, spacers, and fairleads. Lately there has been used another bakelite-laminated material called "Insuroc," which is the practical equivalent of micarta with graphite in it.

Thus an oilless bearing is formed! Our airplanes are beginning to find uses for them, in rudder and elevator bearings, in spots where sea water will be plentiful and inspection access poor. Generally insulation may be applied to any shaft application where low speeds and moderately heavy

are also unbreakable in ordinary services, and some can be readily formed by heating in boiling water, two outstanding points of superiority over glass. In the light of some experimental work now going on, it is entirely conceivable that fuselages and flying surfaces may be expected to

vibration is suppressed or stopped and only the remaining direction of vibration continues, the wave or beam of light is said to be polarized. Polaroid has the property of suppressing one or other of the directions of vibration of light which passes through it. This leads us directly to an interesting application of transparent plastics which has been of considerable value in the study of mechanical stresses in structural members of machines. (See figs. 3 and 4.)

This application is known under the label of "photoelasticity." It consists of placing a transparent plastic model of the structure being studied into the path of a beam of polarized light, and viewing the model through another polarizing material. When load is applied to the model, a pattern of alternate dark and light bands is observed. The directions and widths of the lines in the pattern indicate quite accurately the distribution and magnitude of the stress caused by the applied load. Experiments of this nature are known as photoelastic stress analysis. Some idea of its effects can be got by obtaining a pair of polaroid sun glasses and dismounting the lenses. By lining up the arrangement diagrammed in Fig. 5, a stress pattern can be produced in the cellophane sheet by slowly rotating the lens which is next to the eye.

POWDERED METAL TOOLS AND BEARINGS

In telephone transmission practice is employed a material called "permalloy" which is powdered and then compressed to form the cores for certain kinds of coils. This particular alloy has been known for some time and is highly magnetic. Meanwhile, the technique of compressing and impregnating metallic powders has been advanced to the point where high-production cutting tools, oilless metal bearings, electrical contacts, and special magnetic alloys can be economically produced by powder methods.

In high-production metal-cutting ma-

ALS

By HARRY A. CAMPBELL

Engineering Department.

pressures are found. Moreover, it may be lubricated in some instances with water!

Plexiglas, plastacel and similar resins, are of importance for aircraft windows and pilots' enclosures as well as for covers on running and landing lights. They have excellent resistance to the effects of weather (ultra-violet rays in sunlight), good light transmission, show little haze when aged, and appear to be more highly resistant to scratching than some other common plastics. Plexiglas, very popular in the aircraft field, is for some applications surpassed by plastacel, which latter has higher bursting strength in some grades than has plexiglas.

The polystyrene family (example: Victron) is of increasing importance in radio, sound motion-picture, and telephone equipment because of its excellence as an insulator in electrical devices operating at high frequencies of voltage and current. It is consequently of interest in aircraft radio work for its light weight, and comparatively low cost in large quantities. Many radio parts, as insulators for antenna leads and coil forms, are cast from this material. It has high transparency to light as well, which makes it useful for the preservation of biological specimens (they are cast into the plastic) and for the protection of prepared surfaces which are required to be free of oxidation effects for microscopic examinations.

Most of these plastic materials are also products of polymerization. In many cases they may cost more than glass, but they

appear, made of molded plastics, or perhaps from plywoods impregnated with plastic resins.

Outside of the aircraft industry and the uses mentioned above the transparent plastics (nearly all can be made so) are receiving attention from manufacturers of optical goods. At present the methacrylates (Plexiglas) and polystyrenes (Victron) have been mentioned as possible materials from which cast and molded lenses might be produced at a considerable reduction under glass in cost. These compounds have good optical properties and may very well come into common use for optical purposes after their properties and limitations are better understood. Some optical glasses, despite their high transmissions and refractive indices, are not sufficiently proof against the effects of climatic changes and ultra-violet light to have very long service lives.

A discussion of the optical application of plastics should make at least mention of the recently commercialized sheet material known as "Polaroid," so named because it has the property of polarizing light which passes through it. To understand the meaning of the term "polarization," let the reader imagine himself to be of atomic dimensions. This would be on the order of about 0.000000025 inch! He might then expect to see the cross-section of a light-wave approaching him, and would observe that wave vibrating in two directions at right angles to each other, simultaneously. When one direction of

TABLE II.
REPRESENTATIVE PROPERTIES OF SYNTHETIC PLASTICS

Group	phenol-formaldehyde	thermosetting	thermoplastic
Chemical family	urea-formaldehyde	meta-crylate	poly-styrene
Density (lbs./in. ³)	.050	.054	.038
Tens. strength (lb./in. ²)	7000-12500	4000-6000	5000-5500
Compressive strength (lbs./in. ²)	32000-38000	24000-30000	13000
Brinell hardness number (500 kg. load)	38-40	48-54	20-30
Heat conductivity (CGS/°C.)	0.00019	0.00071	0.00019
Electricity Resistivity (ohms/cm ²)	10 ¹²	2.4 x 10 ¹³	108
Dielectric strength (volts/mil)	450-900	300-400	500-700
Maximum working temperature, °F.	350	160	176
Transmission factor, white light			
Refractive index (N d)	1.50-1.70*	1.54-1.6	1.60-1.67
Trade names	Bakelite Micarta Textolite Synthane	Formica Beetle Dilecto Plaskon	Lumarith Plastacel Lucite Tenite

*For cast resins

chinery, tools are required to retain their strength and hardness at high temperatures. Ordinary tool steels break down under such service. The carbides of tungsten, molybdenum, and tantalum, three metals obtained from natural ores by chemical refining, have been proven valuable for this purpose. Tungsten carbide has been so used for an appreciable period of time. Due to processing and metallurgical difficulties, the other two materials have not been as prominent but are slowly coming into similar use. Carboloy, a well known development of tungsten carbide, may serve for an example of the physical properties of such materials. This is the carbide impregnated with melted cobalt

under pressure, the resulting substance having a Brinell hardness of 2000, and modulus of rupture in bending of 275,000 lb. per sq. in. approx. This means that beside being very hard, the material will stand great bending stresses such as are present in the tips of tools used in lathes and screw machines at high speeds and temperatures. The cemented carbides and carboloy are relatively expensive, and are accordingly used in small pieces which are brazed onto the tool bits or into holders. With them tough magnanese steel can be machined fairly easily.

A porous bearing which will hold oil in its voids will have little chance of running dry, as the oil will be drawn by the

action known as capillarity to the running surface, as used, under ordinary service. Such a bearing could be used in splash or pressure lubricating systems, so that exhaustion of the external oil supply would not then cause immediate failure of the bearing from overheating. Copper into which is impregnated tin and graphite is finding use for this purpose. Such bearings have been studied and made in the Moraine Products Division of General Motors Corporation and show promise of value for automobile and other applications, where moderate pressures are involved. For heavy-pressure bearings, iron-copper mixtures similarly made are under development. These materials can be pressure molded and so offer economies in manufacture with consequent reduction in costs.

Hard materials which retain high electrical conductivity and which yet are resistant to the heat of arcs and sparks and are non-oxidizing, are frequently required. One such application is found in the PBY float-control switch, where Elkonite G17A is brazed onto copper blocks to form contact facings. G17A is composed of about 53% molybdenum, 46.5% silver, balance carbon or hydrogen. Molybdenum melts at 2620°C . and is consequently little affected by sparking. Silver melts at 960°C .

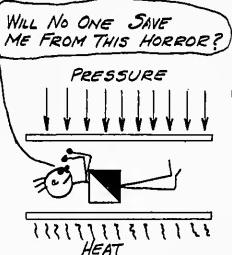


FIG. 1

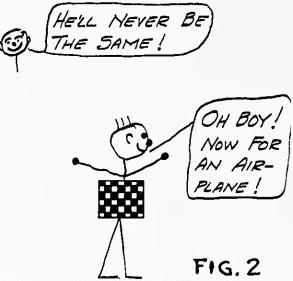


FIG. 2



FIG. 3a

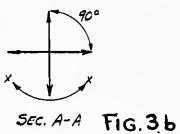


FIG. 3b

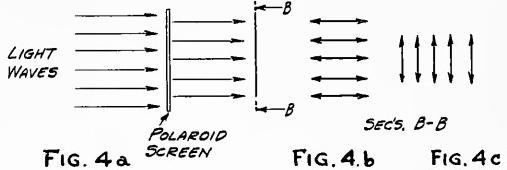


FIG. 4a

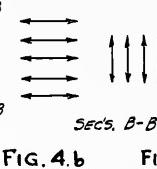


FIG. 4b

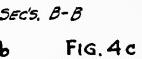


FIG. 4c



FIG. 5

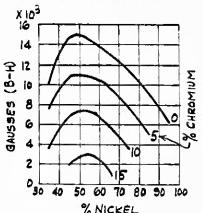
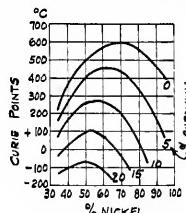


FIG. 6

Fig. 1. Here is a little molecule, Willy Chloroprene, who got mixed up with a big bad chemist. The chemist told him that Willy could become a really useful little molecule if an operation were to be permitted. Willy gave his consent, but as you can see here, dire events are happening and Willy doesn't like it.

Fig. 2. Under direction of the chemist, who turned out to be a pretty good guy after all, Willy has been given a bay window and weighs appreciably more than he used to. Also, now he can join a lot of other little molecules just like him. He still has the same amounts and kinds of materials in him, however different he may look here. The chemist calls Willy a "polymerized" molecule.

Figs. 3, 4, 5. A side view representative of the light wave appears in 3(a), the line through the curve representing the transverse plane of vibration. 3(b) is the cross-section, taken at A-A or elsewhere across the wave. The entire cross-section may be at any position around x-x, as the vibrations are not necessarily horizontal or vertical with respect to our position. The 90° angle, however, remains for any orientation of the wave. 3(c) shows the effect of polarization upon the waves indicated in 4(a). If the polaroid screen is turned in its own plane 90° , the plane of polarization is shifted as shown by 4(c). In Fig. 5, if strain is put on the cellophane, interference patterns will appear to the observer. Some experimentation may be necessary, by turning the polaroid lenses in their own planes, and with respect to each other, to get this effect to appear. The lenses should not be exposed to greater than normal atmospheric temperatures.

Fig. 6. These curves indicate the ranges of magnetic sensitivity of the iron-chromium-nickel-silicon alloys discussed. Each curve represents the properties of one group of alloy, each group differing in percentage of nickel and chromium content.

and has the highest known electrical conductivity at ordinary temperatures. While silver oxidizes, the oxide is unstable and breaks down, so that the resistance across a silver contact will remain about constant even under corrosive conditions of atmosphere. The combination is very hard and such contacts will not weld together under any ordinary service. For the same reasons, mixtures of tungsten and copper are used for electrodes in spot-welding machines. Table III lists some properties of these materials.

In general Elkonite is made by compressing the powdered metal (tungsten, molybdenum) into bars and passing them through a hydrogen-atmosphere furnace at temperatures appreciably below melting, where the powder particles fuse together or frit, into a spongy mass which is filled with pores. This sponge metal is then put into a carbon crucible with molten silver or copper (melting point: 1083° C.) and left (also in hydrogen furnace) until the softer metal is absorbed into the spongy base. The resulting compound may be hot-worked to size and finished by grinding, or milling or rolling. The process for the tool alloys and porous bearings is in general similar to that just described.

GLASS FABRICS: FIBERGLAS

Temperatures at which insulating materials may operate are limiting factors in the design of electrical devices. Economies in weight and cost could result from the use of insulating materials possessing long service life under high-temperature conditions.

Fiberglas, or fabric made from fibers of glass, has been introduced commercially to fill this need. This material is made from glass fibers as small as 0.00016 inch diameter, which are drawn in a plastic state through fine holes in a platinum bushing and wound onto high-speed spindles. The speed of drawing controls the fiber diameter. Thread is spun from these fibers and the thread is woven into tapes, sheets, mats, or sleeving, on conventional textile machinery. The composition of the glass is one especially developed for the purpose, as ordinary glasses were found not adaptable to standard machinery.

The resulting fabrics can be treated with insulating varnishes if necessary, to improve electrical and mechanical properties. Glass tapes improve in strength characteristics up to temperatures of (400° F.) (204° C.) at which points both cotton and asbestos tapes deteriorate. Comparative properties are shown by Table IV.

Application of glass insulating fabrics to electrical machines may result in some

TABLE III.
DATA FOR ELKONITE MATERIALS

Grade	Composition	Hardness Rockwell "B"	Electrical Conductivity (Silver=100%)
G-13	Tungsten carbide	50-70	55%
	Silver		
G-17	Molybdenum	60-80	43%
	Silver		
G-17A	Molybdenum	55-75	48%
	Silver		
20S	Tungsten	90-100	45%
	Silver		
OW3	Tungsten	55-75	39%
	Copper		
3W3	Tungsten	85-93	34%
	Copper		

TABLE IV.
TENSILE STRENGTHS (LBS.) FOR 1" x 0.010" TAPES.

		after heating to:				
		78	300	500	700	900 °F
Fiberglas tape (continuous fiber)*		492	499	488	375	175
Cotton tape		85	78	burned out		
Asbestos tape		20	20	17	6	burned out

*"continuous" fiberglas is made from endless filaments of glass, unbroken from end to end of the tape, as in silk and rayon textiles.

cases, in weight reduction of as much as 30%. Glass fabrics are also valuable for floor mats in such places as hotels and theaters, where burning cigarettes or matches are likely to be dropped, since the fabrics are non-inflammable. They should find many decorative applications as well.

MAGNETIC ALLOYS

Large numbers of applications of electrical devices, such as relays and torque motors, to the control of heat have made apparent the need of a magnetic material which will respond to changes in temperature by changes in degree of magnetic qualities ("Permeability"). Metallurgists of the Battelle Memorial Institute have announced the production of a series of iron-chromium-nickel-silicon alloys having such properties. These materials do not appear to have immediate application to aircraft, but it is probable that in future they may find uses in aircraft equipment involved with heat control. Fig. 6 indicates approximate characteristics. In these curves the "Curie Point" is that temperature at which the material becomes practically non-magnetic, and the units "Gauss" and "Oersted" are units indicating the degree of magnetization and magnetizing forces, respectively.

Thanks are due Mr. W. A. Schurr of the Engineering Department for suggestions and for calling attention to some of the information included in this discussion. Acknowledgment is also made to the publications of the E. I. Dupont de Nemours Co., The Thiokol Corp., B. F. Goodrich Rubber Co., Owens-Corning Glass Co., International Nickel Co., Boonton Molding Co., Polaroid Corp., P. R. Mallory

Co., and the magazines Mechanical Engineering and Electrical Engineering, and to the International Critical Tables, as sources of material and for verification of physical properties.

WOODSHOP CHIPS

By E. J. Hodgson

ALL the fish in the Pacific had better look out since Bobbie Brabban can go out without becoming seasick!

Mrs. Jack Baker, who is spending a long vacation back east, had better come home soon, before Jack pines away altogether.

It's good to see our genial little Danish friend, Harold Hansen back again, as well as the other boys who have done considerable fishing.

Carl (Major Hoople) Brown, went all the way to the World's fair at San Francisco to see Sally Rand. He was terribly disappointed however. His wife said, "No!"

Art Wiffenbach, that noisy (not nosy) inspector is on the job once more. Watch your sixty-fourths boys, or that man will be after you again!

According to the papers, Johnny and Mrs. Woodhead played the trumpet for the Easter Sunrise Service up at Suncrest. That's good work in any language, so keep it up, both of you.

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California's Junior Game Patrol

THE Junior Game Patrol was first organized in 1936 by the Division of Fish and Game from a plan originated by Mr. A. T. Jergins, Fish and Game Commissioner of California. The plan is to educate the younger generation along the conservation lines, teaching them to appreciate and protect wildlife. The Junior Game Patrol, under the direct supervision of the Division is made up of troops of boys from 15 to 21 years of age. Their membership is solicited throughout the schools and the troops are sponsored by sportsmen's clubs, civic organizations, or individuals.

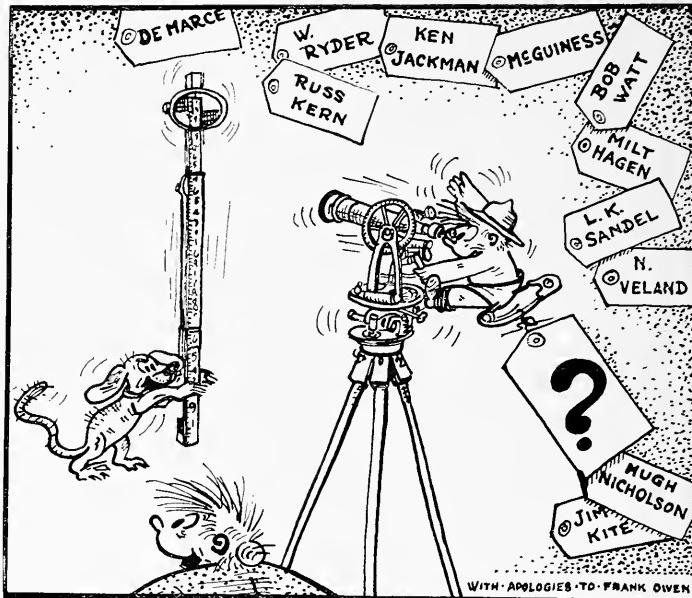
In organizing a troop, a group of boys is called together by the Division of Fish and Game and the purpose of the Junior Game Patrol is explained to them. The boys are given literature on fish and game laws and on natural history subjects, and are provided with applications for membership. Weekly meetings are held thereafter. After four weeks of instructions on fish and game laws and the reasons for them, a preliminary examination is given.

The successful boys take the oath of office and are given badges and credentials signed by the three California Fish and Game Commissioners and the Division's Executive Officer. Thus, they become Rangers of the Junior Game Patrol. Then they are ready to commence with the course of instructions.

Field trips are an important feature, as it is only through actual contact with nature that the desired results can be obtained.

The sole purpose of the organization is to teach conservation, create better sportsmanship and more respect for fish and game laws.

Anyone of *Consolidated* interested in furthering this work thru giving of their time for instructing, or anyone having young boys of the age that would be interested and eligible, should get in touch with E. F. (Al) Butzin, No. 5017, Hull Department.



Spotting the above humorous sketch of a transit man at work, Bert Bowling wanted to know which one of our men was the inspiration for the well known artist Frank Owen. The original appeared in an advertisement for electrical equipment, but the resemblance to all the men mentioned on tags is remarkable.

WING KEYHOLE

By Browne

Army "Bartender" Armstrong was in beer up to his waist at the Good Time Club's smoker.

McGee is going to be married . . . more later.

We wonder when and where Dan Jones acquired those oversize shoes?

Vic Atkinson reported a very pleasant trip enroute to Buffalo. Vic sent "Mac" McGuiness a radio-gram stating that in Buffalo, Missouri Budweiser is .05c a gold fish bowl full (without the goldfish).

Tommy Guarinotta's parents are leaving Buffalo for a stay in San Diego. Adios Buffalo!

We understand Mrs. Dot Heidemann thinks Frank arrived home before 12:00 on the night of the smoker. What a man!

We haven't heard of Gil Lance's goats of late. Why, Gil?

Elmer Gahlbeck has broken his New Year's resolution. We see his wife is cutting his hair again.

Red Johnson and Stan May received traffic tickets and spent six weeks in traffic school. Slow down Red. As for Stan you had better walk to work.

Oh! Leo; Did you ever hear about the ship without a sail, or the horse without a rider? Same difference.

CONSOLIDATED PHILOSOPHY

THE best things are nearest—breath in your nostrils, light in your eyes, flowers at your feet, duties at your hand, the path of God just before you. Then do not grasp at the stars, but do life's plain common work as it comes, certain that daily duties and daily bread are the sweetest things of life.

We make friends by being a friend.

An acre of performance is worth a whole world of promises.

Accurate knowledge is the basis of correct opinion; the want of it makes the opinions of many people of little value.

A man should never be ashamed to own he has been in the wrong, which is but saying in other words that he is wiser today than he was yesterday.

Uprooting a bad habit isn't effective unless you stick a good one in the hole.

When wealth is lost, nothing is lost; when health is lost, much is lost; when character is lost, all is lost.

Every day is a little life, and our whole life is but a day repeated. Therefore live every day as if it would be the last. Those that dare lose a day, are dangerously prodigal; those that dare misspend it are desperate.

We judge ourselves by what we feel capable of doing, whilst others judge us by what we have already done.

Phone Jackson 2011 Chick Runyon
"The Blind Man"
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Tool Room Tattles

By Terry

THE best April fool doing was the surprise marriage of Charlie Tailer, Tool Room foreman. He fooled nearly everyone and went "a wifin'." The bride was Mrs. "Pat" Klumb, and they had the knot tied on April first. This is all the information given other than the swell cigars.

At the Sunrise Services for Easter: Grayce and Genevive Holm with Miss Kipple enjoying the morning air. Joe Maloney and the missus trying to get a little of that wind after coming down the mountain. Russ Kern, the head goat was there, trying to get an action picture of the mob going home for breakfast. Lou and Mrs. Sandel were there bright but Lou said it was a little early for him to take such a big work-out.

Johnny Lockwood tried the water at Del Mar and reports the water grand, after you chew your lips going in. Along the water was Carl Wright who says, "They ain't a fish in that bay yet!" But John Robinson proved it by catching a croaker and a bass.

Bob Abels was trying to talk a salesman at Lion's out of a nice new sport coat like "Mac" McGuiness bought. And there was also that pleading, limpid stare in Kenny Sullivan's eyes as he was trying to talk that great big policeman out of a ticket. He was good too, 'cause he got out of it.

Of course the big college dance drew its share of our gang too, and in stiff shirts and stuff were Kern Seely, Monroe Jones and Dick Hathaway.

Will someone please explain gently to Chuck (Three short beers) Hibert that the La Jolla telephone number he was trying to get was just a trifle off? It was the La Jolla Police Dept. and the Desk Sergeant's wife is named Ruth.

The pride and joy of Bird Rock has suggested to put a delivery tag on himself after the second beer, 'cause he is only a three-schooner man!

And Jimmy Meyers is dodging all school teachers, so there! How Bill Weaver did yell when he was smelling those nice sweet-peas when someone hollered "Ferdinand!" . . . And in this corner we have "Red" (Cupid) Robbins for the head delivery boy in the May Basket Parade, and now???

(Ed. Note: We see by the State College paper that the engagement of Miss Marion Bickham to Evan C. Terry was announced . . . Terry being our columnist. Miss Bickham is a member of Alpha Sigma Chi sorority, Terry our hustling tool room clerk. The date of their marriage is set tentatively for Nov. 29th.)

Rod and Reel Club

SEVEN Consolidated youths opened the nineteen thirty-nine fishing season with a "Grand Slam" Saturday, April 8th. Very early in the morning fisherman Coykendall, Thompson, Lang, Mussen, Giovanoli, Ambrose and "novice" Kern boarded the "Crate" Aztec II, picked up a few "miniature Sardines" and headed due south to Mexican waters. The boys spent a most delightful morning cruising thru a tranquil sea 'round 'n about the Coronado islands. At noon the skipper pulled along the west side of the north island, cast anchor, and some unexpected fun began. Ubiquitous yellowtail . . . and how. Everyone seemed to have a fish on their line at once and what a fight they gave the boys. Everyone aboard caught one or more and here's the yellowtail score for the trip: Roy Coykendall 8, Edwin Lang 5, Bob Mussen 5, Jack Thompson 4, Al Ambrose 2, Russ Kern 2, Joe Giovanoli 1.

April 12th the Rod and Reel club held their annual election of officers at the Chamber of Commerce. The following were appointed to serve during the coming year: Pres. Charles Hibert. First Vice-Pres. Roy Coykendall, Second Vice-Pres. George Landy, Third Vice-Pres. Walter Beyer. Recording Secretary Glenn Hotchkiss, Financial Secretary John Hopman, Sergeant-at-Arms L. A. Perry.

Fifty-three members have already signed up for the 1939-40 season. Anyone interested in joining this fine *Consolidated* organization can do so by contacting any of the above mentioned officers.

And here's a true "Short fish story" . . .

Al Nelson and Erv Watts take to an "over ripe" row boat in pursuit of big bass. The boat springs many leaks, starts to sink. The fishing is very good. Little attention is paid to the oncoming water. The boat sinks . . . every man for himself. Al heads toward shore. Something grabs him by the leg. It's his fish line and he saves his pole. Erv heads for shore and is advised by spectator Garner Green not to leave a certain bottle. He swims back, retrieves the bottle, but not his pole and makes the shore. All fish are lost. Erv made a trip back the following day and managed to retrieve his pole, but Al's tackle box still resides on the lake bottom. Moral: Soak your boat and you won't get soaked!

Ezard: "Why do we have to flush rivet those wings?"

Wainwright: "To keep the heads from blowing off at top speed."

Why Does?

By Eddie Raymond

Why does Ernie Johnson wait so long to make the first payment on his golf clubs?

Why does Jack Thompson like moose liver?

Why does Bob Morse wear colored glasses on foggy days?

Why does Craig Clark want to work on a power brake?

Why does Walter Borg refuse a nice big glass of beer, or is he really the head man at home?

Why does Frank Morse brag about his oil consumption when getting eight miles to a quart?

Why does Russ Kern leave his girl friend walking the streets in a strange city while he goes mountain climbing?

Why does Al Ballard want to use a softball ball and a bushel basket for the hole when playing golf?

Why does Red Kimball think he is Rudy Vallee, Junior and Senior combined, when he yodels?

Why does Jack Mulroy shake his head "No" before you have a chance to finish your question?

Why does John Penfield say, "Leave it to Dad?"

Why does Herb Ezard take a promenade on El Cajon each evening?

L. G. Mitchell is now one of the strongest boosters for the group insurance . . . He recently spent 13 weeks sick in bed, and the benefits of his policy during this time came in very handy, he avers.

Answers To Questions

1. Paralketone.
2. 160° F.
3. Angle of attack.
4. 62,000.
5. Electrolytically.
6. Langley Field, Va.
7. Fused Sodium and Potassium nitrate.
8. San Diego Bay.
9. Major Gen. H. H. Arnold.
10. National Advisory Committee for Aeronautics.

LINDBERGH FIELD CAFE

Administration Building

Lindbergh Field

"The Home of Aviation"



GLIDING AND SOARING

By JERRY LITELL

ABOUT ten years ago when gliding first had its heyday, one could see gliders at one time or another on every hilltop around San Diego, always surrounded by interested spectators. They were being assembled, adjusted or taken apart and once in a while one of them could be seen in the air. Catapulted off the hilltop they would skim along the canyon sides, closely following the contours to get some lift from the deflected wind but it was usually a losing battle. The flights lasted from a few seconds to a minute or two and ended with a jar, sometimes a rough one.

Then Bowlus introduced the sailplane to San Diego. These ultra-light, highly refined gliders didn't skim along the canyon sides. They soared all day, high over Point Loma and Mount Soledad.

Gliding now became merely a step toward the sailplane. The schools and clubs formed an association: "Associated Glider Clubs of Southern California, Inc." for the purpose of organizing activities and acquiring sailplanes. Things were hum-

ming.

Then came the depression. The sailplane factory closed. The glider clubs slept for seven years. Only one loosely

organized group kept gliding alive. Led by Dave Robertson who later joined *Consolidated*, they designed and built gliders of their own at school and at home. They had learned that even a primary glider can soar if the ridge is high enough and the wind is right. They also found that at Torrey Pines you could auto-tow the glider up into the up-draft which you could find near the top of the 200-foot cliff. This method required only a car, a driver and a towline, and was infinitely safer than depending upon the perfect teamwork of 6 to 10 men to catapult you over the edge of a 300-foot precipice.

Gradually gliding was revived. When *Consolidated* came to San Diego in 1935 there were three home-made sailplanes flying. Two years ago there were six of these sailplanes flying on windy days at Torrey Pines, on calm days at Camp Kearny either beaching their partners and ground crew or chasing that elusive will-of-the-wisp, the "Thermal."

You may have watched their efforts at Camp Kearny and thought that they went to a lot of trouble for their short hops. But if you have seen them at Torrey Pines, soaring on a brisk west wind, floating lightly back and forth, sometimes three, even four at a time you must agree that this kind of flying comes close to natural bird flight. There is no roar of the engine, no propeller blast, no smell of gas and oil, nor vibration. In fact, more than once the boys have joined a formation of soaring seabirds without breaking it up. What a thrill to be accepted among nature's soars as one of their own!

Let us take a ride! The wind is west, the tide is low and there are whitecaps on the ocean. You are towed 500 feet behind a car from the beach, and carefully watch the cliffs rush by your wingtip. The steady pull of the tow-car brings you two-thirds up towards the top when you suddenly feel a surge and the rope gets taut. You level off to relieve the strain and pull the release. The ship is free and lurches skyward for a moment, then climbs steadily. The cliffs sink under you and you are

level with the pines. There is the coast highway curving gracefully on to Del Mar, and there is the beach with the tow-car and some fishermen and bathers below. You just float along, turn leisurely off the end of the cliffs, but don't forget that you are gliding now and stall! That's fine, now you are over the breakers and can feel the glide. Get back to the ridge to catch the updraft. The air is smooth and buoyant. You are soaring.

From the end of Torrey Pines to Scripps Grade is about six miles. That makes 8-10 minutes of soaring low enough and slow enough to enjoy the details of the natural park, and shout a joyful "Hello" to surprise a picnic party as you soar along . . . just "Plane Sailing," . . . tacking to windward enough to keep from drifting in from the ridge. At the other end of the ridge the cliffs are much higher and you gain altitude in double proportion. Now you can glide out over the ocean or drift inland. Just return to the cliffs in time and there is that friendly lift again. It is easy to forget time and stay up all afternoon, but your partner wants to fly too, so let's get back to the beach. This time, when the ridge ends at Sorrento Valley and you turn, take a long glide over the breakers to land where the beach is uncrowded. You prepare for a cross-wind landing, but as you get lower and drift back to the beach you find it is quite calm. Remember, a sailplane is always landed in flying position. Its one wheel is right behind the seat, half-way inside the fuselage, so judging your height is easy. Just level your glide ever so little and you never feel just when your wheel begins rolling. Now you can coast for 500 feet if you want to, but you don't. The tow-car is just ahead so you push the stick forward. The long nose-skid plows thru the sand; you stop as if with hydraulic brakes just beside your partner who steadies the wing while you get out.

A short time ago we had this experience on landing on the beach:

"What's that Officer—we can't fly from this beach? But we have permission, look, here it is."

"Listen, fellows: The law prohibits all driving on the city beaches. If you want to argue, tell it to the judge."

It appeared that some unsympathetic anglers had invoked a city ordinance which had never before been applied to this beach. It looked bad for soaring in San Diego. But a good cause is not killed that easily. We had a real friend in the president of the old "Associated Glider Clubs of Southern California, Inc." He revived the association, and handed it over to our



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group, lock, stock and barrel. As an incorporated club we could now bargain with the city. A high-minded citizen helped us obtain a lease to a field located about a half-mile back from the highest point of the cliff.

Soaring prevails at Torrey Pines! In the next issue of the *Consolidator* we will take off from our own private airport! Get ready for a thrill, folks!

while there's room left in the vaults. Bill Liddle has been depositing regular but with an uncertain rate of interest. Do you grab me?

What "Chief" Mulroy seems to be losing in the way of avoidupois, Lloyd Bender seems to be picking up. They will probably work out a system of changing clothes unless Jack gains his back after taking on too many "schooners" of that sparkling

Leave it to the Rod and Reel Club to do their stuff when it comes to electing officers to direct that worthy group of "sardine kidnappers." "Chuck" Hibert, that hardy old salt and skipper of the good ship "Peg's Gripe" is president, either through choice or a stuffed ballot box (I haven't received the two bits for my vote as yet). Glenn Hotchkiss, John Hopman and Roy Coykendall, received a lot of praise for their work during the past year and were almost unanimously re-elected to serve another term. Hopman handles the cash too, but maybe the three Vice-Presidents' duties are to watch him. George Landy, Walter Beyer, and L. A. Perry are the other "big shots" and we feel that the club is in capable hands. Congratulations fellows as only real sportsmen receive honors such as these.

The La Jolla "hell drivers" tell me that I will be responsible for all traffic tickets collected on the morning run, as there is a cop behind every bush since the expose of the "handicap" in last issue. I don't feel so bad if it proves there are more people reading this stuff than myself.

According to Al Ballard, fashion expert of upper lip decorations, the column written by Ed Raymond should read "Why does I stay alive." Says Ballard "The shiftless skunk bought a spray gun and charges a "buck" to loan it and I only wanted to try a few color schemes on my new 'lip creation.' The writer has learned Ed needs the extra coin for a nurse so he can get out once a week to play golf.

PRODUCTION MINUTES

Bv "Brad" Bradshaw

WHAT years of trying to figure out why a screw machine is so "screwy" will do for a guy was proven by Henry Golem's promotion of that triangular meet of golf, shooting and bowling that furnished *Consolidated* Sportsmen with a barrel of fun and uncovered some mighty fine athletes. The Engineers stole the show with "Mac" McDougal high aggregate and tops in shooting, Roy Miller best at golf and Bill Ring third high aggregate. Now Jeff Bouley will accuse me of stealing stuff from his department to fill my column. But can I help it if those fellows are inclined to be on the athletic side, even if only "feet and smell?" Irving Craig came through for Sheet to cop the bowling and Frank Carey, dark horse, paid the longest odds as number two high aggregate. Ignoring all threats from the "Liars Club," Ed Drews counted every stroke and proved "honesty pays" to take the "booby" with his 168 in golf. Bud Waterbury looked like an old hand at getting in the "gutter" with that 58 and 65 bowling score. George "Sharpshooter" Wire probably turned "Buffalo Bill" over in the grave with that 13 score in shooting. We suggest a handful of buck shot at ten paces. Ed Stewart didn't enter because he couldn't use Boeing for a target. Great stuff "Hank", Mussen and all those responsible, you deserve a big hand.

The Johnsons are "a-feudin'" with the Hieberts again becuz there was a party in the Hiebert manor, includin food, and the Johnsons didn't get no invite. The Hieberts alibi that the food was limited and they wanted to ask four other friends. That ain't all the "woe" for the "gol darn termites" are eating all the boards off the Hiebert boat. Concerning this, the Johnsons claim those termites are the first to ever get the best of 'em. After getting this news, I am wondering if that Hatfield and McCoy affair was a feud or a romance.

Muriel Hodgson, former employee now with the Bank of America, sends word that if you have any old socks full of coin buried in the back yard, to bring it up

liquid while in Buffalo or Lloyd finds the ball he lost last summer and starts playing golf again.

A toll bridge between San Diego and Buffalo, would really grab off some change with the past, present and future vacation trips of *Consolidated* folks. Bill Liddle, Matt Wielopolski, Henry Yogert, Willard Luppke, and Ted Anderson, are all back and thawed out with Jack Mulroy, Arnie Sprenger, Craig Clark, Otto Bendt, Jim Eisman and many others on their way or putting their nickels away for the trip. Ed Kellogg and company claim the record time of 52 hours going east which means George Newman may leave any day now with that accelerator clamped to the floor to get that record back. And the writer will give him a lot better chance than Schmeling getting his title back. "Here's Hoping" says Ben Keigle, "so I will have something to shoot at when I head that Model 'A' toward the old home town."

The thrill of the month was furnished by that dispatcher-adventurer, Craig Clark, who left his beautiful home and flowers with the wife to "rough it" over Torrey Pines. There Craig encountered a giant rattler which gave him the "bird" and this irked our hero no little. How far he can throw is a question, but two stones did the trick and to be original he "brought it back dead." Says Craig, "I hadn't washed my hair, but I couldn't do a thing with it"

That Tonawanda Club reunion at the Bavarian, not getting into the column because the writer could not remember what happened is all prattle-prattle and has hurt me to the core. After writing my fingers to the bone, I guess it just wasn't printable or the star characters had too much "hush money." Gracie typed my stuff and after all it was "Papa" Phil Koenig who thought he was Phil Harris, and Gracie has to live at home. I also remember Art Thurston doing the "buck and wing" and Jim Patton leading the singing. I even recognized Al Ambrose's feet from under the third table. In fact I saw everything double, so there!!!

Think twice before you pass judgment on the other man's car or his handling thereof—and then say nothing.



FRAZEE'S
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Al Rhodes and his reflecting telescope.

Telescope

By Bill Weaver

OUR gadgeteer of the pattern shop, Mr. Albert Rhodes, has at last out-gadgeted himself. Al, being one of those souls who are never content with things as they are, generally finds himself improving on an improvement. This time it is a telescope. In the past it was "diggum out" golf clubs. You who have played golf with Al will remember some of his schematic-looking creations for coaxing the little white ball out of tough places. Then too, Al has done no end of clever things with his home-made, long range camera, and now his latest, but not least: His telescope.

The photograph doesn't do justice for the warm feeling Al has for his latest creation. Those who have had the pleasure of looking at the rings of Saturn, the beauty of Venus and the craters and mountains of the Moon through his instrument are warm in their praise of the fine job that has been done.

The telescope has been built around a 9-inch reflecting mirror with a 78-inch focus. This being the same type of mirror that is ground for the Palomar observatory. A reflector mirror of this size enlarges a body in the sky, 312 diameters larger than can be seen with the unaided eye. The

DRIFTING THRU DRAFTING

By BOULEY

When this reporter is in deep despair For morsels of news from we know not where, Our anguished gaze ever turns to the light Which Henry holds aloft to aid in our plight; His daily doings start tongues a'buzzin' And the newshawks now fondly call him "cousin." From boyish pranks to losing his jollippy We'll follow Mandolf for colorful copy.

THREE is an ancient pun attributed to a certain Swede who remarked: "Dis ban a yoke on me" as his egg splattered on his shirt front, but Henry Mandolf is saying it in his own dialect these days. It seems that Henry was advocating a certain manner in which one could squeeze a raw egg without breakage occurring. To make his arguments more convincing he proceeded to put on a demonstration for the edification of several of the fellows at the lunch table. To the delight of the audience and the mortification of Mandolf the egg collapsed miserably in the ordeal, and gobs of goo were duly propelled into his eyebrows and other tonsorial adornments, while the remainder of the egg's contents trickled down his vest. Henry claims that

mirror is mounted in a hexagonal tube 12 inches in diameter and 84 inches long. This was fabricated out of plywood, and mounted in a portable base which gives it somewhat the appearance of a piece of field artillery. While Al was building his telescope there were a lot of suspicious looks cast Al's way by the neighbors. But they now feel relieved since Al has assured them it is harmless even to look through.

The mechanism that rotates the tube to compensate for the rotation of the earth and to keep the heavenly body in view, Al made from parts from various sources: automobiles, clocks, washing machines and even a kiddy car, being the main contributors. The mechanism is driven by a "one ant power" induction motor. Al has had lots of patience with this little fellow, trying to coax him into doing the work of a horse!

Those who have had the pleasure of looking through this telescope are amazed at the clarity with which this instrument can define an object. We take our hat off to you, Al, for a job well done.

the hen threw him down by failing to include the proper amount of calcium in the eggshell, but privately we think that Mandolf always did it before with a nest-egg.

And, fearing we might run out of copy, Mandolf put on another special act this month in passing the perfectos in celebration of the birth of a daughter, Elinor. "She weighed only seven pounds!" chirped Henry, indicating that his delight is ever in weight reduction no matter what the project.

George Schairer's calculations were further complicated this month by another process in triangulation as a result of the arrival of a bundle of boy now known as George Edward Schairer II. The growing list of "Thirty-niners" in the engineering department has led to the suggestion that a drafting table be put on that certain floor in the hospital so that these nervous engineers can concentrate on something familiar while waiting.

Further activity in our Vows and Wows department was engineered by Jimmy (Whistler) Syren, the melody boy, who substituted Lohengrin for Deep Purple long enough to take Miss Harriett Wolcott as his bride. Promptly using his new father-in-law as an excuse for a pun, Jimmy says "the wedding guests Aetna everything in the house." Tsk! Tsk!

Our swelling ranks were further augmented recently by the return of our missing Swiss, Frank Holdener, sans yodel or feather in his hat. After an eight months sojourn in the Alpine regions Frank is firmly convinced that Swiss cheese weighs as much as any other despite the holes. He also thinks the St. Bernard dogs with the little whiskey kegs are fine and should be imported here. We agree that it would be a splendid idea. One of those dogs could come trotting up with a bracer after the exhausted pedestrian has finally managed to cross one of our busy arterials.

One of our operatives reports that the termites have caught up with Bill Ring and that they are eating his desk right out from under his feet. Because of the great number of drawings accumulated on the desk, the little fellows were not noticed until they had made considerable headway. It has since been discovered that termites are always attracted by the green "Rush" tags on drawings.

P. S. I had another good article, but Doug McDougal asked me not to put it in.

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B. F.

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Otto proved to be the big fish in the bowling league, so he joined the Rod and Reel club to follow up his ambitions. O. P.

O. P. now indulges in moccasins for daily use. With a string of feathers and a coat of tan, you could hardly tell him from a buck Indian! Woo-Woo!



Gun Club X's

The list below shows the individual averages for March, 1939 of members of the *Consolidated Aircraft Gun Club*.

An open invitation is extended all persons in the employ of the *Consolidated Aircraft Corporation* and members of their families and friends to attend our weekly shoot held in the basement of the Stanley Andrews Sporting Goods Company at 7:30 every Wednesday evening.

Participants in the recent Triangle Match, who desire to shoot occasionally, may feel free to be our guests as often as they like and use our equipment and the range facilities.

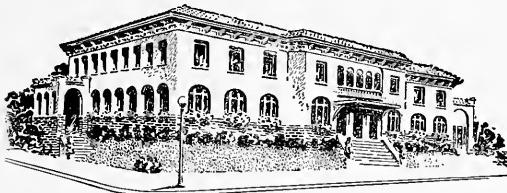
High Individual Aggregate Score:
McDougal, D.—284
Meyers, H.—284

Kneeling: -
Golem, Henry—98

Offhand:
Meyers, H.—93

CONSOLIDATED GUN CLUB AVERAGES FOR MARCH, 1939

No.	Name	No. of Times	Fixed	Prone	Sitting	Kneeling	O'Hand	Total
1	McDougal, D.	3	50	49	92	90	281	
2	Meyers, H.	2	49	47	94.5	87.5	278	
3	Golem, Howard	3	49.5	47.5	92	85	274	
4	Golem, Henry	4	49	47.5	92	85	271.5	
5	Schnaubelt, H.	5	49.5	47.5	90	82	269	
6	Kallis, F.	3	48	46	89	76	259	
7	Conniry, J.	4	47.5	45	87	78	257.5	
8	Schneider, J.	4	48	45	88	73	254	
9	Prior, H.	3	50	47	81	73	251	
10	Soares	4	46	41	84	68	239	
11	Peterhansel, O.	3	49	44	84	61	238.5	
12	Kipkowski, S.	3	47	45	78.5	66	236.5	
13	Von Meeden, H.	2	47	40.5	74	69.5	231	
14	Weber, L.	1	47	41	76	56	220	
15	Benson, D.	2	43	38	63	45.5	189.5	
16	Patton, J.	4	36.5	27	50	43	156.5	
17	Lawrence, H.	2	38	30	42	39	149	
18	Bauer, L.	2	36	28	41	37	142	



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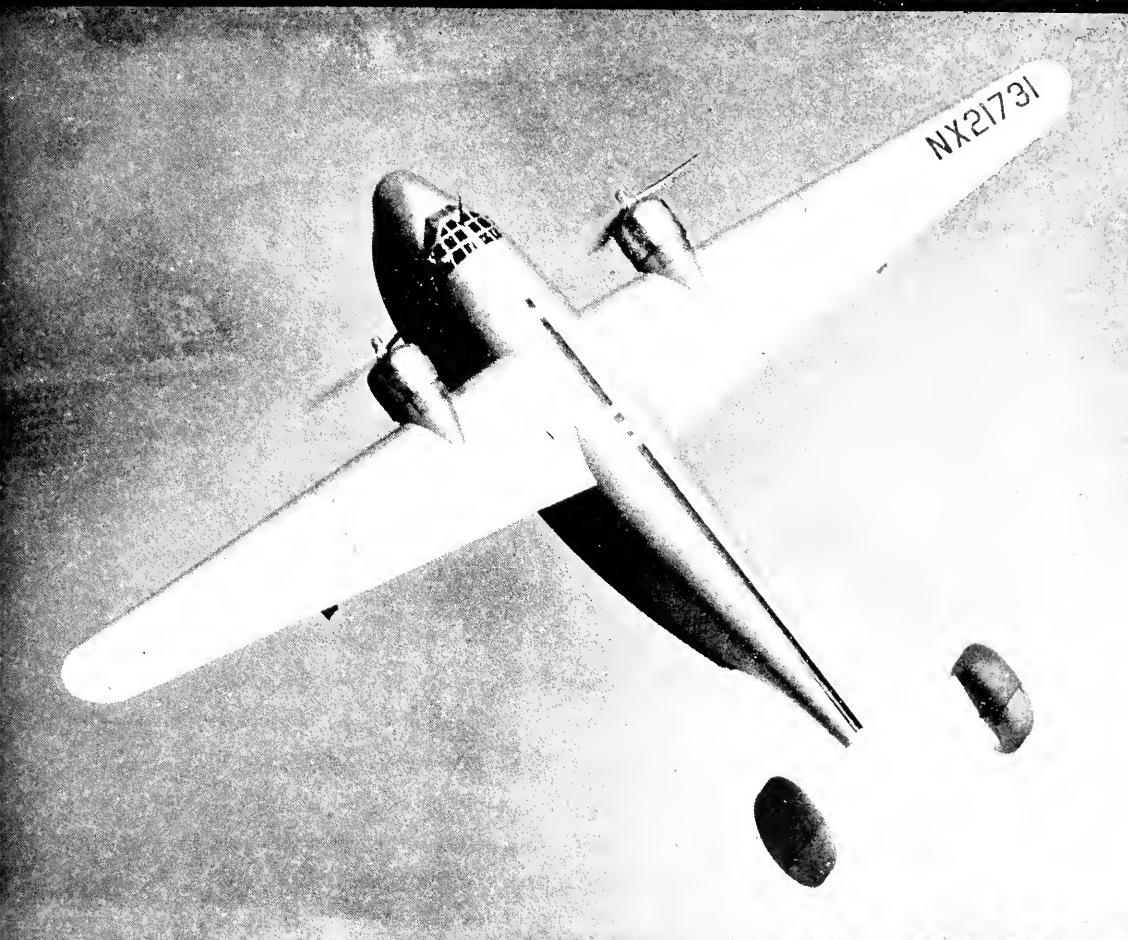
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CONSOLIDATOR

Volume 4

June, 1939

Number 6

ROYAL VISITORS

DURING the month of May, we seem to have been particularly honored: On the 6th of the month, Col. Charles A. Lindbergh paid a visit to the plant and made an inspection of the plant manufacturing facilities. Arriving as he did on a Saturday, his visit was not witnessed by many of the plant personnel, although it was noted that among others he was greeted by Donald Hall, designer of the original "Spirit of St. Louis," who is now a member of our engineering staff, as well as by Major Fleet and other company officials. His visit was brief, but thru his skilled eyes and knowledge of aviation, probably highly informative.

On Tuesday, May 16th, we were again most royally treated in the visit to the plant by Crown Prince Olav and Crown Princess Martha, of Norway, and members of their Royal party. This visit was a signal honor indeed, as but a brief portion of the day was spent in San Diego, and over three-quarters of an hour devoted to a trip thru our plant. The inspection tour here was quite leisurely, and all members of the party appeared keenly interested in the operations. Those in the Royal party besides their Royal Highnesses were: Major and Mrs. N. R. Ostgaard, Captain N. A. Ramm, Minister W. Morgenstierne, Mr. Aage Bryn, Mr. Jens Schieve, Mr. Hans Olav, Mr. Chr. J. Mohn and Mr. O. Gladtvædt and accompanying them, Professor Doctor Harald U. Sverdrup, of Scripps Institute.

After arrival and introductions, the Royal party set out immediately thru the plant, touching upon every phase of the activities and finally in conclusion arriving at the office of Major Fleet. Departure was made by automobile under escort from the patio adjoining the office.



Appearing in the April issue of the magazine "Soaring" is an article "Higher Cruising Speeds" dealing with cross-country soaring. It's a first-rate article and no wonder . . . it was written by our own Dan Zuck of the Engineering Department.

FROM A MODERN PILOT

There ahead of me at last was my objective. With a sigh of relief I switched off the automatic map feed.

Leaning forward from my luxurious seat I switched off the automatic pilot.

Turning to the radio equipment I faded out the beam and faded in the field.

Rapidly winding in the direction finder, I requested permission to land.

Switching, with the speed that deceives the eye, over to "Receive," I got the "O.K."

I turned on the infra-red landing gear.

I wound in the aerial.

I wound out the telescopic portion of the wing.

I protruded the retractable venturi.

I switched off the de-icer.

I switched off the cabin-light.

I unlocked my slots.

I lowered both legs of my retractable landing gear.

I wound down the retractable tail wheel.

I altered the set of my variable pitch prop.

I performed an incredible contortion as the direct result of having to perform the last four duties concurrently,—because of the nearness of the airport.

The aeroplane performed an astounding manoeuvre as the direct result of this.

I switched off the cabin-heater and wiped the sweat from my brow.

I wound down my slotted flaps.

I wound the tail-adjusting-wheel back.

Seizing a frenzied moment I closed the throttle and immediately began to wind out my landing-lights.

I wound in my radiator.

Finally, as the immediate value of the time decreased, I wound in my retractable oil-cooler.

Leaning back, I switched off the air-conditioner.

A moment later, just as I landed, I leaned forward again.

* * *

It was the wrong airport.

So, opening the throttle, I flew swiftly away again, winding everything in and out as I went.

—From "The Aeroplane."

WOW!!

Accustomed as we are to reading of increasingly large horsepower in aircraft engines, we are not always fully appreciative of the tremendous amount of energy involved. Take the two engines of the Model 31, for instance: These, at take-off can loosen 4,000 horsepower (combined) thru the two 16-foot three-bladed propellers, which is actually the loosening of 2,200,000 foot-pounds of energy in one brief second! Maybe foot-pounds are not just in your line. If not, you may look at it in another light: Allowing an area of only 3 feet by 8 feet as standing room for an actual horse, the power output of these engines in horses, would require about 2.2 acres . . . and the beasts would be packed in rather snugly! Looked at from still a third angle, the average man at physical labor works at a rate of about one-quarter horsepower. Thus the two engines are the equivalent of a working force of 16,000 men! From these figures you can convert the power of these engines into ham sandwiches consumed, bales of hay, pounds of horseflesh or any other thing you want . . . probably the best way, however, is to take a look at those closely packed 18 cylinders in each engine, and then just say, "WOW!!!"

P.S. When the above dope was passed along to Harry Campbell for a checking, he appended a note which read: "In one second these engines require about 125 cu. ft. of air to burn .778 lbs. of fuel to produce about 15,000 B.T.U. This air, if confined at atmospheric pressure would occupy a cube 5 feet on a side. The electrical equivalent of heat liberated in one second would operate a 1,000 watt electric stove for nearly 4½ hours!"



Wisdom lies not in being able to distinguish between right and wrong, but in the realization that there can be a difference between two rights.



"Praise loudly and blame softly."

Do you often see more real help put into five words?



Left to right: Squadron Leader J. R. Addams of the Royal Air Force, F. A. Learman, Squadron Leader R. H. Simms of the Royal Australian Air Force and C. A. Van Dusen. The squadron leaders made a brief visit to the *Consolidated Aircraft* plant recently in connection with our Model 28-5 flying boat being constructed for the British Air Ministry. Squadron Leader Simms has returned to Australia, Squadron Leader Addams is in charge of Technical development for the British Air Ministry at Lockheed.

MISS-ITIS . . .

IT is sometimes a surprising revelation to find how close we come to a certain thing, or an operation that takes place regularly, and still, due to a slight deviation or timing difference, miss it entirely. Two of the top-notchers in our organizations recently were viewing portions of the movie of plant operations. One of them remarked, "Well, I'll be. That's the first time I ever saw that operation!" A little later on the other smiled at an entirely different scene and admitted it was the first time he knew where this second operation was carried out! That may seem strange to some persons, but when you consider the scope of the operations going on here, and the fact that each man must concentrate rather fully upon his particular job during the time that the day allows, it is perfectly possible for such things to be missed entirely until they are brought to the attention by some out of the usual procedure.

Just to prove that all of us are subject to this same element of "miss-ititis" the law of averages is probably in our favor for the odds of about ten to one that not over three persons in the plant will be able to recognize all three of these things without turning to page 15 for the explanations:

Where, in the plant, are there rooms, normally dark and unfilled, where the wind howls constantly, pulls and tugs at you all the while you are in them and slams the door behind you with a vengeance as though you were enacting a scene in a howling storm? There are few persons who have been there, so that ought to stick most of you.

2. The above rooms are a fine setting for the origin of dire acts of vengeance, so, while you were there, suppose you got the idea you would like to take a friend of yours to a spot in the plant where his watch would be gummed up without his knowing it and while it was still in his pocket. To what department would you take him?

3. Equal to half the department, blacker than the ace of spades, where seeing green means you can slow down and the red light that you can go . . . where is this and in what department.

A genius is an acrobat who can walk the fence between sanity and insanity.

WOOD CHIPS

By J. E. Hodgson

AFTER a long and arduous chase, little Dan Cupid finally overtook our genial inspector J. L. (Billy) Weaver. His marriage was celebrated April 29th last to the charming Miss Vivian Faucher, R.N., of Boston, Mass., who is a graduate of the only French hospital in the country in Quincy, Mass.

The engineering loft is enriched by the transfer to it from the wood shop of M. C. "Tip" Weber, Harry Larsen, and Joe Davis. Congratulations Mr. Coughlin and boys, the benefits should be mutual.

After his appendix operation, Harry Walter is back on the job again, looking fine, and in his own words feeling that way. He and Mrs. Walter wish to thank the boys for the beautiful flowers sent him during his illness.

Mr. Ambrose is to be congratulated on the acquisition of Johnny Woodhead from our midst. Johnny is an expert on plaster molds, used in making drop hammer dies.

Mr. and Mrs. "Billy" Weaver wish to thank all concerned for the lovely electric Toastmaster and Waffle Iron presented to them on the occasion of their marriage.

Did you ever hear our bathroom tenor, Bob Harshaw, warbling on the high notes? He claims that he can reach high "C". Sometimes it sounds like the twelfth letter.

Jack Benkner is looking more like himself since Mrs. J. B. got home from her trip east, where she visited with friends and relatives.

Missing: A few lengths of safety chain, since a certain lead man has a replacement on his lost gum chewing china clippers. "Safety first, Johnny, eh?"

I held her tiny hand in mine
I clasped her beauteous form

I vowed to shield her from the world
And from the world's cold storm.
She turned her lovely eyes on me
And tears did wildly flow,
And from those cherry lips she said,
"Dog gone you, let me go!"

—An old poem.

Our genial author of "Consarians About Town," Willard H. Fink, of Drawbench, surprised his friends after a birthday party on May 6th, by the announcement that he was a married man, and had been since February 22d. The Bride: Miss Mary Charlotte Horn, daughter of Mr. and Mrs. W. G. Horn of San Diego and formerly of Baltimore. Mr. and Mrs. Willard H. Fink are now at home to friends at 1833 30th Street.

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J. E. DRYER, PRES.

The Boss I'd Like . . .

Condensed from THIS WEEK

(Robinson Peale, i.e.: Preston Lockwood)

I AM one of those employees who has always been in daily contact with the man I work for. I've given, therefore, a good deal of thought to the sort of man I want to work for:

AGE: My boss shouldn't be too old for his job. If he's that old, he's out of step with life, whether he knows it or not. Above all—when it comes to the daily, run-of-the-mill work—he must be able to take it and like it.

If he's too young, on the other hand, he hasn't had time to learn his business. The job will probably run him, instead of his running the job. He will tend to mistrust his own judgments—even, perhaps, when he thinks I'm pretty good.

PHYSIQUE: My boss shouldn't be too fat. Excessive avoidropous may mean there is something wrong with one or more of the glands, which regulate personality as well as weight. *His character, along with his corpus, may bulge in the wrong places.* There's as much to the tradition of certain regiments of the British Army that the colonel must be thin and no officer fatter than his colonel, as there is to the popular belief that fat men are good-natured and broad-minded.

The shouldn't be too thin, either—or too tall, or too short. If he is, you can be pretty sure that he has often envied better-proportioned men. And, envy, at the root of a man's character, is as dangerous as dynamite.

HOME LIFE: My boss should be happily married. If he isn't he's apt to have complexes, and show the effect of frustrations—throw his weight about the office, either because he can't shift his position freely at home or because he's formed the habit of "asserting himself" in the domestic circle and forgets to lower his voice when he comes to business.

Bachelors, divorced men and widowers are sometimes as difficult to work for as unhappily-married men. They seldom have the proper sense of proportion about their jobs. They blow hot and cold. Without warning, they make the office their home—with all that this means to those who have to stick around as long as they do. Again, they try to do their business on the golf course.

And I want the man I work for to have children. All fathers are brothers under the skin. Same things to worry

about and to stick out their chests over! Children, furthermore, have a habit of emphasizing "home truths" until they sink in; and the better the man I work for knows himself, the better I'm pleased.

HEALTH: My boss should be in good health. (Organizations require employees to take physical examinations. I suggest that employees be given the right to look at the doctors' certificates of their employer.) I don't require my boss to be Olympic-team material, or even an "ex-athlete." I ask that he be reasonably fit, as the life insurance companies measure fitness. The more power a man has, the more far-reaching are the effects of his illnesses. I have seen good businesses wrecked by dyspepsia.

FIRMNESS: My boss should hold me responsible for what I have to do; but he should not interfere in its doing. If he's indifferent, where are: the mutual stimulus that should be part of our relationship, the incentive of merited praise, the spur of deserved blame? And if my boss makes me do in his way what I ought to be allowed to do in my own way—what will become of my self-reliance?

FAIRNESS: A man's religion is his own affair; and I realize I'm starting something when I talk about that side of the life of the man I work for. Nevertheless, I will go on record as stating that I like my livelihood to be in the hands of a man who has some religious affiliation. Perhaps this world is all there is to our existence; but I think our life here is only part of the story. *At any rate, if my boss can have a better guide than the Golden Rule, it hasn't been called to my attention.*

This means that I want my boss to be fair—to know capacity when he sees it—to recognize loyalty when he meets it. If he's that sort of person, he won't play favorites—even in my case. So, I may not get ahead as fast as the next fellow. But what sort of worker would I be if I were unwilling to take my chances on that?

There are exceptions to all rules. Neither a traffic cop nor a psychoanalyst can be sure of what a man is going to do. But, if my boss is substantially the man I've described—then, on balance, he's all right by me. I'll work for him and feel, in working for him, that I'm getting somewhere, and helping him to get somewhere in his business.

And it's all to the good, if my boss also has:

The sense of humor, which lightens the day's labor—for sometimes it's long.

The ability to give brief and clear instructions—for the factor of error is always with us.

The hearty handshake and robust spirits which communicate courage—for, now and then, I need a lift just as he does.

Ed. Note—The original of this article was printed in *This Week*. Then it was condensed and run in the *World Digest*, and is so worthy of printing that we secured the author's permission to run it here. Robinson Peale, incidentally, is the pen name of Preston Lockwood, a director of *Consolidated Aircraft Corp.*

FINISH NEWS

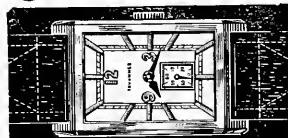
By Max Goldman

Orville Hubbard has returned from his two weeks' vacation looking fit as a fiddle. He claims the fish were biting good up north. Orville took in the San Francisco Fair and also visited Yellowstone National park and Reno. His cocker spaniel dog stood the trip very well in the trailer.

Congratulations to Bert Hodges on the birth of a son!

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MODEL 31 . . .

ON May 5th, lacking two days of being exactly ten months from the date of its authorization, and the announcement of Burr Carroll as its project engineer, the graceful and powerful Model No. 31 arose from the waters of San Diego bay on her initial flight. As on the initial flight of the XPB2Y-1, Chief Test Pilot "Bill" Wheatley, Co-pilot Geo. Newman, Flight Engineer Jack Kline and 2nd Flight Engineer Bob Keith were aboard handling her controls.

At noon *Consolidated's* latest fast traveling twin-engined flying boat was manoeuvred above the plant for the entire personnel to see, then headed up the coast into the murkiness of the day, soon being lost to view, but returning later to alight on the bay.

Newsreelers and a host of cameramen and news reporters vied with each other for angles best calculated to display her unique lines and streamlined form. They grasp the significant facts of her speed, range and load-carrying ability, as a marked advance in flying boat design. And the considerable import of the fact that but a brief ten months was involved in producing this highly advanced craft. Probably never before has a craft capable of carrying 52 passengers been produced in such a short space of time. The accomplishment speaks well for the new method of lofting, and the close cooperative union between the engineering department and shop.

Streamlining to utter perfection, with a keen eye held throughout on productability of all the advanced features, as well as the

usual structure, has netted a flying boat of outstanding characteristics. Two Wright, 18-cylinder, twin-row radial engines each rated at 2,000 horsepower for take-off, (the first of these engines to be installed in an airplane) power the model 31; swinging in turn three-bladed, full-feathering Hamilton Standard Hydro-matic propellers 16 feet in diameter. Looking at the high aspect ratio wing with but 110 feet of span, and these tremendous propellers, leads one to wonder if the next advance will not see the propeller tips extending beyond the wings.

The wing itself is full cantilever; its fuel tanks built integrally, following standard *Consolidated* practice, with hydraulically operated Fowler Flaps . . . flaps that for their support have no braces extending into the airstream. The outboard floats retract to the undersides of the outer wing panels, since the wing tips are too small to allow for wing tip retraction as in the PBY and XPB2Y-1 designs.

Ailerons and flaps are fabric covered as are the movable tail surfaces. The hull planing surfaces, wings and tail surfaces are flush riveted. The hull itself, two full decks deep, bringing with it a new high in volumetric efficiency, has a large flight compartment and eight additional large compartments. Aft of these the hull swings up abruptly, eliminating waste space, decreasing skin drag and clearing the tail surfaces high above water and spray. The overall length is approximately 73 feet, height 22, root wing chord is 14 feet. Approximate gross weight, 50,000

"The Model 31 in the yard just before the initial flight. Jack Kline is standing alongside one of the rear beaching gear wheels. At the right just before the take-off, Top, Chief Test Pilot "Bill" Wheatley, below, Co-Pilot George Newman.

lbs. Normally the crew will consist of five: Pilot, Co-pilot, Flight Engineer, Radio Operator, Navigator. The ship has no armament.

Unique is the inclusion of the beaching gear as a part of the airplane, and the provisions for completely retracting the gear hydraulically. The dual tired front wheel of the tricycle arrangement, swings upward into the under side of the hull, while the rear side wheels swing into wells in the side of the hull. The three wheels are completely enclosed by doors for maximum efficiency in flight.

The flight compartment has been completely soundproofed and is completely furnished with all the latest type of instruments and equipment. As a commercial airliner, the Model 31 has a maximum capacity of 52 passengers on a daylight run and 28 passengers for night or sleeper operations. For trans-Atlantic flights, the airplane has accommodations for 28 passengers.

For military purposes the Model 31 would augment the famous series of twin-engined patrol bombers, the PBYs, built by *Consolidated* for the United States Navy. Performance figures have not been released, but the Model No. 31 greatly exceeds the PBYs in speed, range and load-carrying capacity.

Unlike previous experimental flying boats which were constructed by the *Consolidated Aircraft Corporation* under government contract, the Model 31 is



the Corporation's private venture. While the Navy Department was cognizant of the construction, the development has not been financed by the government nor subjected to the ordinary procurement routine which adds materially to the cost and time for construction. Only ten months were required for the design and construction of the airplane, whereas development of types of similar magnitude has required from two to three years heretofore.

Consolidated Philosophy

When a man does only what he must do, he will remain all his life in the rank and file. He will always have to be ordered about. It is what a man does of his own accord that counts.

There is only one way to be happy and that is to make somebody else so.

He who would do some great thing in this short life must apply himself to work with such a concentration of his forces as, to idle spectators, looks like insanity.

You can do or be pretty nearly anything you want to do or be. But not thru wishing. No engineer ever wished a masterpiece of construction into existence. Every detail was first carefully worked out—and many times by the light of midnight oil.

Do what you are paid to do and then some. It's the "then some" that gets your salary raised.

The fellow who is pulling on the oars hasn't time to rock the boat.

Some men think it's their work that is burdensome, when it's the chip on their shoulder that's holding them down.

Responsibilities gravitate to the man who can shoulder them; power flows to the man who knows how.

Getting into debt is getting into a tanglesome net.

Usually the greatest boasters are the smallest workers. The deep rivers pay a larger tribute to the sea than shallow brooks, and yet empty themselves with less noise.

If you want to live happily you must adapt yourself completely to your environments.

Do not anticipate trouble, or worry about what may never happen. Keep in the sunlight.

Born, Saturday, April 22d to Mr. and Mrs. D. B. Oatman of Experimental, a baby girl, Miss Susan Holloway Oatman with black hair and dark eyes. She checked in at the Quintard hospital at 9½ lbs. and incidentally is the 13th grandchild from both sides of the family.

HULLabaloo

GEORGE LANDY who early in life started out to be a wit but only got halfway, had a surprise party thrown at his house in honor of his wife going back east for a visit. Landy says he was really surprised but who ever heard of a "surprise party," that wasn't known of by the host, before anyone else heard of it?

"Fainting" Harry McEwen gently swooned while watching a minor operation in McDonald's First Aid Emporium. Harry says he is improving. Quote "Last time I fainted I was out for ten minutes, this time only five." Nice going Harry!

Harry McEwen's reply to his gentle swooning in the First Aid room, is that if Al Leonard hadn't been sprawled out on the cot, this would not have happened. Harry further states that at least they didn't have to give him aromatic spirits of ammonia to keep him alive.

Mystery—what happened to the 6½ lb. bass that George Wire didn't catch?

Glenn Hotchkiss, the mighty hunter lived up to his reputation on the Balboa golf course. After taking careful aim Glenn brought down a golfer at 100 yards. Mrs. Hotchkiss (as usual) was in at the kill.

We have in the Hull Dept. one of the best known ichthyologists (fish lover to you) in town. Hank LaJoie claims he can carry on a conversation with fish. If at anytime, anyone sees Hank opening and closing his mouth, do not be alarmed, he is merely singing a fish lullaby and not gasping for breath.

Born to Mr. and Mrs. E. H. Roy, Thursday at 1:20 p. m. Little Miss Penny Ann Roy, who checked in at just 5 pounds, 3 oz. Congratulations!

Born Saturday, April 22d at Quintard Hospital at just 9½ lbs. Miss Susan Holloway Oatman, infant daughter of Mr. and Mrs. D. B. Oatman of Experimental. The young lady has black hair and dark eyes and is the 13th grandchild from both sides.

From the "Metal Edge Packager" this stickler about the size of a fish is presented: When he was hauled aboard it was found that its head measured 9 inches. Its body was as long as its head and tail combined. The length of its tail was equal to that of its head plus half of its body. It's all very simple, of course . . . so how long was the entire fish?

(Answer Page 7)

METAL BENCH

THESE Boys and Wives from the Bench Dept. are vacationing in Buffalo and New York City: Mrs. Albert Haegle, Mr. Wm. Rasp, Mr. Edward Rasp, Mr. and Mrs. James Eaton, Mr. and Mrs. Jack Fleck, Mr. Otto Dudzinski, Mr. and Mrs. Ernie Roeckel, Mrs. George Kiener, Mrs. William Milton . . . per J. Bailey No. 2930.

Mr. and Mrs. Jack Fleck, left Saturday, May 6th, for a month's vacation in the East. His old pals in Poges Hole, better be on the watch 'cause Jack is very clever on the draw . . . (poker). No. 2930.

Here in the Metal Bench, the can-openers are very much in use. Take, for instance Mr. Kiegle and Mr. Milton . . . always arguing about who's a better man for opening cans . . . while their wives are visiting in the east! No. 2921.

Geo. Kiener and son say they don't mind their eating in a restaurant . . . but oh, how they dislike housework. So in every letter Mrs. Kiener receives in the east, here's what the boys of Bench think is in it: "Hurry home just as fast as you can!" No. 2930.

Mr. Kuro won't have to hurry any longer to catch the 4:15 train for Los Angeles, as he has rented a home for his family in La Jolla.

All the boys are also glad to see Adolph Germeinde return from the back country in the best of health. No. 2924.

We have oil burners and Diesel burners. Frank Morse, inspector, owned the former but decided to dispose of it when he found the right bargain in a Chrysler. He considered his oil problem solved, when lo and behold he discovered he owned a Diesel with greater oil-burning capacity! It looks like his next bargain will be a Buick. What a car! No. 2925.

TUBEBENDER

Most people build a house and then pick out the extras they need or want. Bert Freakley is starting backwards. He has the chime-sounding doorbell, but no house or door to put it on. Let us hope he builds a house so he won't have to put the bell in his study room where he does his heavy thinking!

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At left: Various bearings used in aircraft installations. Large to small, they are: light duty (A546), full type retainerless (S12), roller (R120), sealed with ball retainer (300), extra light unsealed with ball retainers (S-O). Front center: rod end-bearing unit (REB-3). The buffalo nickel gives an indication of their size. At right: most commonly used aircraft ball-bearings. Left to right Double row (DK5), felt seal light duty (KF5A), felt seal medium duty (KF5), unsealed light duty (A543), medium duty (KS) and self-aligning KS.

ANTI-FRICTION BEARINGS

By T. A. PARKER, Engr. Dept.

BACK in the good old days when man was not a slave to the machine some clever caveman discovered it was easier to drag a carcass over hard ground strewn with pebbles than it was to drag it over plain hard ground, for even then man had to pay a sales tax to friction every time he spent energy for motion. Later he employed the same principle when he dragged his crude dugout up on the beach, using small logs as rollers. Later still some prehistoric genius pivoted the roller on a frame of sorts, and finally, some time before the Year One, his successor added rollers in the hub of the wheel. Then the prototype of the wheels of industry began to turn, for man had won a decisive victory in his continual battle to reduce friction. Rolling friction had replaced the much more exorbitant sliding friction.

Today the anti-friction bearing is a compact assembly that embodies the same principles as that ancient wheel, and permits terrific speeds or tremendous loads without the payment of too great a tribute to friction. The roller-bearing, which consists essentially of rollers operating between an inner ring and an outer ring, called races, is the most efficient load carrier where the load is radial only. However it does not serve for axial loads. The rollers would slide out, or if restrained, their ends would rub on the restraining surface, thereby introducing sliding friction.

The annular bearing has been developed for axial or thrust loads. It consists of two plates perpendicular to the axis of rotation, with annular grooves to guide the balls that rotate between them. Balls replace the rollers in this application as the latter

will not roll around an arc without slippage. However a ball can not carry as great a load as a roller of the same diameter, for it obviously has only point contact with its races instead of line contact.

For combined radial and axial loads the most general type of bearing is similar to the roller bearing except that again the rollers are replaced with balls and the balls operate in grooves whose sectional radius is larger than that of the ball. The radial load is carried as in the roller bearing but the axial load causes the balls to tend to slip out until they are restrained by the edges of the grooves. The grooves are so proportioned that the ball still operates with a true rolling motion.

This last style of bearing is the type most generally used in aircraft. Its load-carrying capacity is limited by the tendency of the ball to brinell the races, that is, dent the surfaces. The brinelling load is determined by an empirical formula based upon tests. In general the rating of a bearing is the maximum static non-brinelling load, with a factor of safety included. It is calculated from the formula:

$$\text{Load} = 5000 \times \text{No. of balls} \times (\text{Diam. of ball})^2$$

In aircraft design where the actual load imposed is carefully analyzed and calculated, it is permissible to reduce the factor of safety until it is more in conformity with factors throughout the ship, and the rating is consequently higher. However, when the speed of rotation is appreciable the static rating does not apply, for the allowable load must be considerably reduced as the revolutions per minute increase.

A number of types of bearings have been standardized and are manufactured to the same specifications by various bearing companies. The most common of these in aircraft installations is the K series. It is a ball bearing with retainer rings that are added to seal lubricant in the ball space and to seal dirt out, consequently the bearing needs no further lubrication after it is first packed with grease when being assembled by the manufacturer. Its races are cadmium-plated and the retainers are made of stainless steel to prevent corrosion. Upon installation it is usually pressed into a housing and staked in place, that is, the housing material is deformed over the rim of the outer race, either with a prick punch in a few places or with a revolving tool that upsets the housing around the entire circumference of the bearing. If there is appreciable axial load on the bearing some more rugged means of holding it in place must be employed, however.

A modification of the K series is the felt sealed or KF bearing. In addition to the steel retainers it has a thick felt washer that is an even more effective seal, and therefore the bearing better adapted to installations where it is subjected to exposure such as control surface hinges and other external pivots.

Another type that has a special application is the self-aligning bearing, the KS. It is the same as the K except the outer race has a spherical outer contour that mates with an outer ring, also a part of the bearing assembly, and therefore permits a slight misalignment of the axis of the shaft with the axis of the housing. The bearing is used chiefly where the shaft varies with respect to the housing through the range of motion, as in the case of a push-pull rod whose ends do not operate in a common plane.

The KA series of bearings has the same features as the K, but is designed for lighter loads with the same bores, or shaft diameters, and therefore less weight and overall dimensions. Similarly the KB series is lighter still. This series has only recently been developed and is comparable with the A543 series, as shown in the illustration, except that it has retainer plates like the K and KA. The KH series is the heaviest and strongest of this style of bearing, but the KD which, as its symbol implies, has a double row of balls, is also a heavy duty bearing.

The roller bearing, KR, is also a standard aircraft bearing, but a modified roller or needle bearing is more generally used. The needles are merely very small rollers and the bearing is most appropriate where the outside diameter is limited by lack of space and there is no thrust.

The above basic types of bearings are further modified and combined to make the KFA, the KFD, the REB, etc., each with its special advantages, until the symbols are as confusing as the initials of the Federal agencies. In fact it has been rumored around the Engineering Department that the recently developed FHA greatly facilitates the rolling qualities of cart-wheels.

In aircraft there is one predominant use of bearings, and that is in pulleys in cable control systems. The total number of bearings used in the model 28 flying boats for example, is 650, of which 270 are in pulleys. The anti-friction bearings reduce only one kind of friction in such a control system. A great part of the drag in a cable circuit operating over pulleys is due to internal friction in the cables, which is the work necessary to bend the portion of the cable approaching the pulley and straighten it again as it leaves the pulley. Internal friction is greater when the radius of the bend is smaller so the obvious way to reduce the internal friction is to increase the pulley diameter. The ball bearing greatly reduces the friction of the pulley revolving about its pivot, but it has no effect on the very appreciable friction in the cable.

As the number of bearings used in the model 28 indicates, there are many effective uses in aircraft. In other fields they are used in installations varying from slow massive mining machinery to small electric motors turning 48,000 rpm. The latest installation noted is in a tap dancer's shoe, where the bearing is used to facilitate tapping and turning. Wouldn't that application make our prehistoric genius green with envy?

MACHINE SHOP

YOU don't have to go to a Machine Show to see the latest and most modern in new machine equipment. No, sir! All you have to do is stop down at our own shop and see all the newest machinery.

During the last month our new machines have arrived and they are just about the last word in mechanical perfection and streamlined design.

The big Le Blond Gap Lathe can swing work up to 50 inches in diameter and has a sliding bed which enables work up to 13 feet long to be turned. Although this machine is able to do large work, it is so easily operated that it also can do small work with the ease of a smaller lathe.

The Cincinnati Centerless Grinder can grind bolts, pins and general work when the outside diameter has a close tolerance, with speed and precision.

The six spindle Avery Drill Press has a capacity of drilling 1 1/4 holes and has automatic feeds for each spindle.

The Murchey Threading Machine can thread from 1/4 to 1 1/2 S. A. E. and from 1/4 to 1 U. S. S. threads in steel. The die head being of much heavier and sturdier construction, combined with the precision of the lead screw, will enable us to get precision threads regardless of size. By running jobs of the same thread with one setting of the die head, this machine will eliminate duplicating die head setups on the turret lathes and thereby lower production costs.

The most fascinating and the fastest production machines are the three new Brown and Sharpe, and the two new Cleveland automatic screw machines. These machines can cover a range of work from 1/16 to 2 1/2 in diameter and are almost human in the manner in which the operations are performed. They will do operations such as turning, threading, drilling, cross drilling and screw slotting, all automatically.

At the present time the machine shop equipment alone includes: turret lathes, automatic screw machines, engine lathes; horizontal, hand and vertical mills, profilers, broaching machines, speed lathes, 2, 4 and 6 spindle drill presses, single spindle high speed drill presses, heavy duty drill presses, tool grinders, external grinders, centerless grinders. Threading machines, radical drill presses.

We are proud of our Machine Shop, and justly so, because we feel that we have a shop that is as modern and well equipped as any on the west coast.

Dan Miller.

ROD AND REEL

THE Rod and Reel Club held their annual spring hard times dance at Sunnyside, Saturday night, May 20th. A most hilarious time was had by the fishermen and the lady folk as they danced to music fit for a king by our own Leonard King and his orchestra. There were one hundred fifty-four present.

Highlights of the evening were: President Chuck Hibert in a pirate's outfit trying to capture the women by stealing their hats . . . Hank Golem leading off in the jitterbug contest which was won by the Joneses in a "photo finish" which showed Mrs. Harry McEwan and Orville Koleman jittering into a close 2d. . . . Hank Liegel doing his usual bar-room numbers, only all alone this time singing softly to Roese who for some unknown reason was quiet for a change.

Willie Roamer the roamer sure done some roamin' in the gloamin' trying to find Sunnyside. He drove 49 miles thither and yon between San Diego and Sunnyside. . . . Roy Hartmeyer and Al Butzen won first and second door prizes respectively and Mrs. Harry McEwan and Glenn Hotchkiss took away the costume prizes. . . . Bud "Tarzan" Buffat as usual had a girl friend on each arm most of the evening and by his big smile you could see he was having the time of his life.

The club will sponsor a two-day fishing party during the month at Ensenada, Lower California, on Beautiful Todos Santos Bay. The m/s Mirrita will be chartered for fishing around the Todos Santos islands off Banda Point. Details will be announced later.

Answer to the "Fish Story" . . . the fish was 72 inches long.

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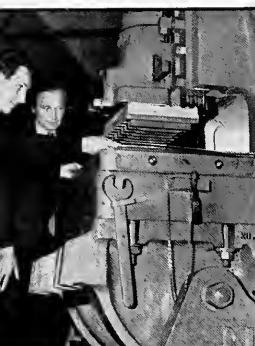
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Left: Eddie Raymond in charge of the punch presses lines up a louver die as Sheet Foreman Henry Liegel looks on. Center: a general view of a portion of the Sheet Department. Right: "Scotty" Jim McCartney, Connie Seaderquist and "Red" Kimble straighten out a problem with the cowl flap ring.

A COMPLETED flying boat is something big, beautiful and graceful to behold. Seldom is its construction analyzed or its thousands of small details considered. Yet, without these carefully designed and completed important items we would have no modern airplanes. Little would be gained if light-weight materials were not utilized to their best advantage. To gain this end, thousands of sheet metal parts must not only be ingeniously designed to perform to their maximum capacity but they must also be accurately built to assure satisfactory assembly and operation.

To the Sheet Department is entrusted the job of producing not only these thousands of details but, in many cases, their assembly into complete units as well.

Men make departments and men produce results. It is with this thought in mind that we take a trip through the Sheet Department and meet some of these people.

First of all, we want you to meet the man in charge of this large department. He is Henry Liegel, and from the moment you meet him he's "Hank" from then on, just because he's that sort of person.

Hank was born in Lancaster, New York, and after attending school in that city, became an apprentice cormaker with the Gould Coupler Company. He soon moved to Buffalo, joined the Pierce Arrow Motor Car Company, and handled body detail production there for several years. This was all in the days before huge presses; when skilled hands were necessary to turn out the sleek-looking chariots of by-gone days.

In 1912 Hank moved over to Curtiss

and worked in every department on the first production planes that company produced. He also saw service with Elias and Hall Aircraft before coming to *Consolidated* in 1931. He advanced to his present position the hard way. Having started on the bench, he worked up through the layout, pattern making, and tool making departments. His smooth-running department reflects his cool thoroughness of disposition.

Assisting Hank is Eddie Voekle, who had several years' experience in varied capacities at both Curtiss and Hall Aircraft corporations before coming to *Consolidated*. Helping to keep things moving smoothly as Eddie does is no small job, when one considers the diversity of production requirements and the complex nature of some of the assemblies being manufactured.

The Sheet Department covers a tremendous amount of floor space and is equipped with all types of modern sheet metal working equipment. Many of the machines were designed here and built in our own Tool Room.

First of all, we enter the screened-in cutting room, equipped with every type of sheet metal cutting device known. Here one can see two rows of metal cutting table saws of various sizes, shears of all types capable of handling the longest stock size of sheet material available, band saws, nibblers, and the long row of shapers with their whirling cutters turning out irregular shaped details in record time.

In charge of this important unit is Al Ballard, who has advanced to his present position after many years in various capacities with *Consolidated*. We might add here that we think his safety record in a department where the paramount rule is safety first is quite enviable.

ARTISTS IN

It is in this unit of the Sheet Department that all material orders are filled with correct required materials. Keeping the various types and conditions of materials in order is no small job. Al is assisted in this duty by Claude Rowe, who can generally tell at a glance what amount of any given size material he has on hand.

Just outside of the cutting room you will see the large area covered by rows of punch presses, and prowling around them and observing their operation is Eddie Raymond of "Why Does" fame. Eddie is one of the early bird *Consolidators* and, besides running these presses, is just about the world's greatest portrayer of "touching stories." His original masterpiece entitled, "A Man Had a Dollar and Bought a Drum" is never forgotten once it is explained to you.

If you think all a punch press does is to punch a hole in a piece of metal, you should see what Eddie and his men are called upon to do. Here a press is doing a swaging job on the end of a control tube. Another is driving a burnishing tool through a bushing whose dimension must be accurately held. Still another is doing a deep drawing job in what will eventually be a gas-tight corner of a wing tank. Others are cutting blanks, making washers, forming small slips and hundreds of other jobs. Keeping things moving is Eddie's job. He turns in a fine job, much better than some of the stories he tells.

In another section are rows of multiple presses punching out complete rows of holes in extruded sections in one operation and brakes that can form the longest lengths of stock required in our current production.

In still another corner of the department is a large group of card files, with every tool or template used in manufac-



METAL ... By Larry Boeing

turing sheet details recorded in them. The workers draw out the tools as needed, an accurate check is maintained at all times as to just where the tool is being used. This work is taken care of by the most logical man to do the job, the man who lays out and makes these tools, "Red" Kimbal. Dick Bartlett assists him in his work, as well as in handling the elaborate record file.

When you look at a finished airplane, you cannot help but admire the smooth, sleek lines it presents. This is due to carefully built cowling covering the mass of details of engines, engine-mounts, oil tanks, and miscellaneous equipment. But no longer is cowling just a covering as it once was. In today's airplanes it performs a much greater duty. To begin with, it makes the air entering the power unit area do just about anything the designer, or later, the pilot, wants it to do. Incorporated in the cowling behind the nose ring are flaps to restrict the amount of air passing the engine or to permit a larger amount to enter. In some cases, the cowl is manipulated in such a manner that units of it become platforms on which men working on the engines may stand.

All these units must be interchangeable, and manufacturing them is no small job. To "Connie" Seaderquist is entrusted the work of overseeing the building of all cowl details. Need we suggest more than that you remember your last look at a PBY cowl and give due credit to "Connie" and his crew. Connie is another old-time aircraft worker, having started work in Buffalo with Curtiss and switching over to *Consolidated* about seven years ago. He likes horses but never rides them—but how they ride him sometimes!

Some folks forget that there is more to flying an airplane than getting it through the air. In many cases it is nec-

essary to get the air through various parts of the airplane. For instance, the engine uses a tremendous amount of air which must be directed into an arrangement of air intake chute and preheater when required. Chutes and deflectors must be included to cool the oil in the oil radiators. These and other similar details as well as fairing are made up by "Scotty" McCartney. "Scotty" turned to Sheet Metal work after serving four years in France with the British Cavalry. He can boast of many years of aircraft work.

The last group of boys included in the Sheet Department are headed by Al Johnson and Joe Merk, and it seems all the oversize jobs are saved for this pair. They are responsible for the details and fabrications of such larger units as food lockers, radio tables, bomb racks, hatch door and water-tight door assemblies, etc.

Joe and Al just sort of grew up together, were separated a few times, but are together again. Joe was with the Martin Company in Cleveland and later in Baltimore. He also spent several years with Fairchild at Hagerstown, Maryland, before coming to *Consolidated*.

Al spent many years with the Martin Company and most of it in supervising capacities. He handled many first jobs at that time which included the first all-metal ships ever built. Later he had charge of the Sheet Metal Department at Great Lakes that included the manufacture of both riveted and welded fuel tanks.

To close this article without mentioning the shining soul who can arrange about anything the department needs, from a "handout" to a mess of detail parts, would be a serious omission. We could not—we cannot think of the Sheet Department without thinking of "Lugi" Miller, the man who is just a step ahead. Keeping this large department's orders

L. Wade, Emil Heckman and Geo. Turner start to work on the power hammer. Center: Harold Keeyes and Al Ballard at the 14-foot shear. Right: A. R. Johnson and Eddie Voelkle at work over an instrument panel, Joe Merk with the water-tight door.

and materials straightened out and seeing that parts are routed through to meet production schedule is "Lugi's" job.

In a building all by itself are housed the noisy bumping hammers that are used to form large sections of plating and other similar details. Handling this phase of the Sheet Metal Department is Emil Heckman, who brought to *Consolidated* the skill he gathered while making body details for custom built Pierce-Arrow and Cunningham automobiles. This work is highly interesting to watch, and in some cases the finished part has to be formed with curves reversed in what looks like six different directions. Such operations require the skill of a seasoned metal worker because it is impossible to do metal bumping without the complete understanding of just what is happening to the metal under the fast moving hammer head.

That just about completes the story of the men who guide the Sheet Department, but we cannot forget that larger group of men behind the benches who, through years of experience and training, manage to interpret correctly and highly efficiently the work requirements of modern aircraft manufacturing and turn out jobs anyone could be proud of.

There is just as much beauty in a completed modern airplane or flying boat as one could find anywhere, and if credit can be laid to the fact that the men who produce the parts are artists in their own field, let's think of it in that light.

When you get right down to the root of the meaning of the word "succeed", you find that it simply means to follow through.—F. W. Nichol.



Bowlers: Farnsworth, LeVere, Coughlin, Galley, Hanzlik, Brooks, Gerber, Whitney and Seabold.

BOWLING FINALS

Consolidated bowlers have completed another year of league competition and when the rewards were hung up, the boys from Experimental ran away with the Major League Crown with their 64 wins. In the Engineers' League the Equipment team beat out "Father" Coughlin's Loft gang by just one game. The good "Padre" just about walked away with everything else but the pin boys' jackets though. He hit a 240 for the high single game, holds a season's average of 173 and a high three game total of 595. Some pin pokin' we'd say!

The good "Friar" arranged both banquets and acted as master of ceremonies at both of 'em. The Major league did their "dough splitting" at Emerald Hills and were honored with Major and Mrs. Reuben H. Fleet and Mr. and Mrs. James Kelly as guests.

The somewhat swanky pencil pushers ate at the Savoy 'cause they liked seafood and then everybody ate T-Bone steaks . . . well, everybody but "Deacon" Seabold who refused a cocktail and the "good Father" made him eat wieners and kraut just to keep him different. Trophies were presented to Mike Brooks and "Father" Coughlin for their high averages in both leagues.

"Jim Shella."

CONSOLIDATED BOWLING LEAGUE

FINAL LEAGUE STANDINGS

<i>Team</i>	<i>Won</i>	<i>Lost</i>
1. Experimental	64	17
2. Tube Benders	59	22
3. Wing	59	22
4. Production	57	24
5. Machine Shop	56	23
6. Hull No. 1	54	27
7. Sheet Metal	51	30
8. Final Assembly	47	34
9. Hull No. 2	47	34
10. Maintenance	46	35

<i>Team and Player</i>	<i>*F.A.</i>	<i>H.S.</i>
Maintenance		
W. Erickson	153	523
M. Clutinger	148	522
C. Morton	154	553
Roy Schultz	151	531
L. Grandstedt	155	542
Tube Benders		
Eph Minch	152	553
Joe Maloney	149	516
L. Bender	142	490
Al Ballard	150	538
Bert Freakley	141	585
W. E. Dake	151	533
Wing		
Steve Smith	166	593
Leo Danner	166	630
W. H. Armstrong	151	522
Paul Di Giulio	153	532
J. E. Edwards	170	633
Experimental		
R. Wright	164	579
E. Jackson	150	492
Ed Hanzlik	148	523
Ed Lang	164	562
Ward Levere	159	552
Final Assembly		
C. Rosso	139	479
A. Brennan	143	506
Russell Mount	146	523
Gene Tibbs	147	507
Machine Shop		
Louis Peters	160	572
Carl Heim	159	576
Dan Miller	153	530
Joe Braun	167	596
Ed Rodgers	161	562

<i>Hull No. 1</i>
Bud Shimmin
George Wire
Al Leonard
Fred Grossher
Michael Brooks

<i>Production</i>
J. E. Wilkinson
Roy Coykendall
Tom Jones
W. N. Liddle
Arnold Sprenger
Harvey Muck

<i>Sheet Metal</i>
B. Duffy
Ed Banks
A. H. Kimble
Al F. Rohloff
Irving Craig

<i>Hull No. 2</i>
A. Clark
James Stevens
Harry McEwan
George Landy
Ted Pawlicki
H. W. Roese

<i>* F.A.—Final Average. H.S.—High Series.</i>
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<i>INDIVIDUAL HIGH AVERAGES</i>		
1. Mike Brooks, Hull No. 1	176	
2. Arnold Sprenger, Production	173	
3. Irving Craig, Sheet Metal	171	
4. J. Edwards, Wing	170	
5. Joe Braun, Machine Shop	167	

<i>HIGH THREE GAME SERIES</i>		
1. J. Edwards, Wing	633	
2. Leo Danner, Wing	630	
3. Joe Braun, Machine Shop	596	
4. Steve Smith, Wing	593	
5. Mike Brooks, Hull No. 1	592	

<i>CONSOLIDATED ENGINEERS LEAGUE</i>		
<i>FINAL LEAGUE STANDINGS</i>		
<i>Team</i>	<i>Won</i>	<i>Lost</i>
1. Equipment	36	24
2. Loft	35	25
3. Armament	31	29

4. Hull	29	31
5. Power Plant	25	35
6. General	24	36

Team and Player

Hull	*F.A.	H.S.
H. Isham	149	517
Fowler	144	517
Carlson	114	392
Dormoy	156	519

Loft

T. J. Coughlin	173	595
Learman	138	483
Devlin	135	481
Halvorsen	148	494
Armament		
Clayton	151	507
Kirk	153	530
Waite	128	481
Schurz	130	473
Ring	153	484

Power Plant

MacDougall	158	591
Whittaker	153	520
Gorman	139	462
Stevens	136	467

General

Abels	154	545
Stacey	152	526
Ekrem	143	528
Thompson	113	400

Equipment

Seabold	166	560
Whitney	146	512
Farnsworth	157	573
Gerber	119	449

INDIVIDUAL HIGH AVERAGES

1. T. J. Coughlin, Loft	173
2. Seabold, Equipment	166
3. Macdougall, Power Plant	158
4. Farnsworth, Equipment	157
5. Dormoy, Hull	156

HIGH THREE GAME SERIES

1. Coughlin, Loft	595
2. Macdougall, Power Plant	591
3. Farnsworth, Equipment	573
4. Seabold, Equipment	560
5. Abels, General	545

HIGH SCORE SINGLE GAME

1. Coughlin, Loft	240
2. Fowler, Hull	235

SHEET NEWS

By Connie Seaderquist

Bill Sherriff of our department is in Mercy Hospital recovering from a slight operation. We expect to see Bill back to work on the 4th of June. Hurry back. We miss your cheerful smiles.

G. Caldwell, No. 1721.

Mr. Wade of sheet metal is swapping his Western teeth (open spaces) for a set of starr teeth (come out at night).

A. Hutter, No. 1758.

Al Hutter of the Sheet Dept. is now the proud grandfather of a bouncing 8 lb. baby boy. Daughter and Grandson are doing fine. . . . "Hi, Gramp!"

C. Seaderquist.

P.S. As this issue is distributed, Connie Seaderquist is enjoying himself at Catalina Island!

OPPORTUNITY . . .

WILLIAM S. KNUDSEN, in a recent magazine article, averred that if he were 21 he would turn to a mechanical job to get his start, stating also that while he probably would want a college education today (there were few colleges when he gained his start), he would not let this college training interfere with his gaining a thorough first hand experience in the practical mechanical skills. He lays particular credit at the feet of his early mechanical training and the knowledge he gained when he started in this country as an immigrant boy.

There is nothing humble about a first grade mechanic, he states, for the top rank skilled mechanic is still, in his opinion, the most sought after and most independent man you can find. The American standard of living depends more on the skill of our mechanics, than on any other class or factor. Those, briefly, are the views of Knudsen, and he ought to know whereof he speaks, for he started in as a mechanic and is now President of General Motors.

And *Consolidated*, attuned to this same general principle, is providing, in a material way, the opportunity for getting into the mechanical side of aviation thru close and active participation in the advancement of the recently formed San Diego Vocational High School. This work is going on quietly, though with surprising progress, under the direction of Donald Frye, our Director of Personnel, J. S. Burney and John Waskey who act as advisors to the Vocational School Supt. Don, incidentally, recently took a vacation . . . and spent the whole time burning the midnight oil as a technical advisor for the National Youth Administration in the production of an occupational study of the aircraft industry of California entitled: "Aircraft Manufacturing in California." The acknowledgment of this analysis states in part, "Without Mr. Frye's helpful suggestions and generous contribution of time the preparation of this work would not have been possible."

The school has its own building at State and Market Streets . . . a four-story building and basement which had been reworked and remodeled and now resembles a factory. On the fourth floor it resembles a portion our own plant for this is devoted exclusively to aircraft training. The opportunities afforded here are of two basic kinds: One is the opportunity for those who have had no experience in aircraft work, the second for those who

have had experience and are wishing to advance with the industry. The former group classes meet during the day, the latter at night. Thus is available training for self-advancement for the newcomer to aviation and the old-timer who desires to raise his working ability. *Consolidated*, thru the loaning of equipment, and particularly the services of our trained men as instructors and teachers, has literally opened the "Knudsen door" so to speak, in presenting these opportunities to learn the mechanics of aviation. Already our men serving as instructors in the night classes include: A. D. Adkinson, Larry Boeing, Albert J. Dolan, K. H. Achterkirchen, Chas. L. Hibert, A. R. Johnson, J. W. Van Doren, Raymond Craft. Walter Lacey, now associated full time with the San Diego Vocational School, was a member of *Consolidated*. In addition Gilbert A. Barnikel and Edward D'Amico will be on leave of absence to devote their full time to the instruction of riveters, a field of aircraft mechanics in which it is felt there will be a particular need in the near future. Classes will run thru the summer to fit men for this work. Aircraft classes now running include: Welding, Sheet Metal, Riveting, Layout, Machine Shop, Aircraft Electrical, Blueprint Reading, Tool Design, Aircraft Drafting, Aircraft Engines, General Aircraft Mechanics.

For information relative to these classes inquire at the Personnel Office, or directly at the San Diego Vocational High School at 348 West Market. The school is a unit of the San Diego School system.

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An Irishman doing a hauling job was told he could not get his money until he had submitted a statement. After much meditation he evolved the following: "Three comes, and three goes. At four bits a went, \$3.00."—Exchange.

Overheard from two lads who were strolling in the park. Says the first one, "I think that fellow over there is about to propose to his girl. Let's whistle so we won't appear to be listening." Replies the second one, indignantly, "No, sir, nobody whistled to warn me."

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AERONAUTICAL I. Q.

1. What identification mark is used on A17s Aluminum Alloy rivets?
2. The letters C. A. A. stand for what?
3. Who is the high ranking naval officer recently designated for the position of chief of the Bureau of Aeronautics?
4. What term is used when sliding sideways away from the center of curvature when turning in an airplane?
5. Name a form of aircraft, heavier than air, deriving its chief support and propelling force from flapping wings.
6. What temperature is commonly used in annealing aluminum alloys?
7. What term is used in referring to the tail surfaces of an airplane?
8. Name two eastern aircraft concerns that recently consolidated.
9. What is a longitudinal member called that is placed between ribs, frames or bulkheads?
10. The world's largest air-cooled aeronautical engines are being used in a plane, by what corporation in the U. S.?

(Answers Page 16)

By D. R. Kern.

THE BACHELOR'S LAMENT

Our friend T. L. Powers, No. 4143, who sent his wife back east to show Grandmas and Grandpas that babies are just as nice nowadays, as they were when they were babies, will enjoy the rhyme below . . . also any others who are attempting to keep Bachelor's Hall.

"There are dishes all over the table,
There are grease spots adorning the wall.
There is no room in the sink and often I think,
the cupboard is messy and small.
The icebox is loaded with nothings; A wee bit of this and of that.
The pork chops curl up at the corners.
The darn things are always too fat.
If I try to be happy and whistle,
the strains echo back thru the room,
and everything 'round the cottage is deeply enshrouded in gloom.

The furniture seems topsy-turvy and newspapers litter the floor, and believe it or not; I almost forgot, a dust path that leads toward the door! She's a long way from home and my thoughts want to roam to be with her each day and each hour. 'Cause my heart's in a whirl over that little girl. . . Gosh darn it, I spilled all the flour. She's been gone a few days, and my mind's in a haze since the morning she hustled away. And I know a male cook, who is soon going to look like the shadow of something passe."

Bill Gilchrist.

"Busy people are never busybodies."



WELCOME BACK

WE welcome back to *Consolidated*, Francis T. Moonert, Principal Inspector of the Army Procurement Division. Frank Moonert, as he is known to his many friends at *Consolidated*, was a senior inspector here for the Army until early in 1937 when he was transferred to North American Aviation as assistant to Major Hurd, Army representative of the latter company.

Moonert was born in Cincinnati, Ohio, and in 1919 graduated from the Univ. of Dayton as a structural engineer. His early association with *Consolidated* was in 1929 when he supervised the 0-19 airplanes. At the conclusion of this contract he was assigned to the Curtiss Airplanes and Motor Corp., serving there until 1934. Then he was again assigned for inspection work at *Consolidated* during the production of the P-30s, which later were designated as PB2s. In following thru on this work he came to California with *Consolidated* in 1935.

During his recent absence from *Consolidated*, Moonert was advanced from Senior to Principal Inspector, the position he now holds. His duties in San Diego this time are much enlarged as he will not only oversee the procurement inspection phases of our own Army contract work, but will be in charge of inspection of Army procurements from Solar Aircraft and Ryan Aeronautical as well. Congratulations on your advancement, Moonert, and welcome back to *Consolidated* for a long stay!

It has been learned that: Leo J. Halpin of Final Assembly and Agnes Jewel took a trip to Yuma on Easter Sunday . . . and were married at 4:00 p.m. Congratulations.

Production Minutes...

By "Brad" Bradshaw

I HAVE learned that by being absent on a vacation for two weeks, sure puts a fellow in a tough spot in getting first-hand information on the escapades of the lads around the shop.

One thing the Production Department produces, is the monthly hero and this time it turns out to be our old pal, Ted Anderson, who braved the raging surf to drag out a fair damsel caught in an undertow. We don't know whether she was blond or brunet. Anyway, Ted is still married to Kay, but what a swell chance for unattached Eddie Kellogg who was in the party, but was probably chasing one of the dry land beauties up the beach.

We don't know just what part of "them that hills" little Gracie Koenig hails from, but just like the rest of us she feels like she's caught in a trap with shoes on, and so takes 'em off and works in comfort. Everything was fine until the "office practical joker" decided to hide them which worried Gracie no end at the thought of getting her toes stepped on in the noontime rush for the exits. But due to her keen sense of smell or direction, she found them just in time.

The racquet swingers who blast a ball here and there with the inside parts of our deceased feline friends are having a chance to do their stuff on the courts. Eddie Kellogg, pride of Spares Department, and all around sportsman of both the outdoor and parlor variety is in charge of arranging tennis play and wishes to inform those who believe it a sissy game because of the pretty white panties worn, to come out and change their minds. It will be both beneficial to the waistline as well as boosting your stock with the beautiful females who just adore men who can "swing" gracefully. To date, Bill Liddle has the "cutest ensemble" but will probably meet with some keen competition.

Ben Kiegle, Leo Bourden's number one aide in the Welding Department has headed for Buffalo for a vacation and a new automobile. They say he broke down completely when they finally tore him loose from the wheel of that "28" Ford and dragged it away. Must have been a feeling like taking "pappy" away to be executed. Better put a 15-mile governor on the new buggy, Ben, or show up with a new record for cross-country time if you can keep her from "rearin'".

Since moving to his new location in

Planning, Tom Jones has put in a protest that the pan put by his desk is too small to wash in properly and that he can only get in one foot at a time. For your information, Tom, that pan is for "expecter-ation purposes only" and is commonly called a "gaboon" by people who do not show respect for the King's English. Roy Cokendall says, "If Tom keeps using it as a wash basin, I will be forced to wear my wading boots to work."

Craig Clark, who does the dispatching for the Finish wants all rush jobs to be accompanied with a "crying towel" when Ross Dilling is short of help. Craig claims that this will save him a lot of trouble and as soon as Ross takes a "short cry" he feels much better and will give you excellent service. To all this we expect Ross to say "Pooey to all dispatchers, I hate 'em to pieces."

Since Lou Miller and "Chuck" McManus have been working together in Sheet, the Production has slowed up a bit but the difficulties will be ironed out as soon as they reach an agreement and each doesn't try to hog all the work. Now every time a job comes out Lou says "Mac, old pal, I will handle this and you rest," but Mac insists, "No, Lou, you are working much too hard, I will do it." So on through the day and the order lies on the desk.

If Ed Stewart doesn't watch out, he is apt to lose two of his ace employees as Kirby Higdon and John Bucahn are very much concerned over the life of a sailor after hearing Stone, fellow-worker, relate his tales of "A Night in Brooklyn with the Fleet."

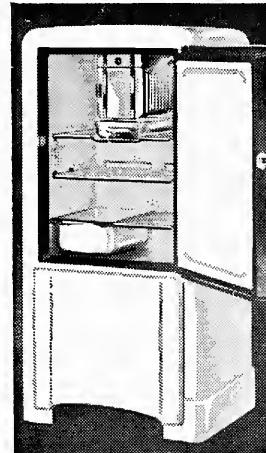
Sam Galasco, Hull clerk tells us that the life of a pick and shovel worker is a picnic compared to getting "2" square shank bolts made in the shop for Freddy Grosser. "Bill Liddle and Dan Miller gave me all the cooperation possible," says Sam, "but I couldn't get any results." Sam will probably hand in his resignation when he goes after a rush job for a "bucket of rivet holes" or a "Hull stretcher" and has Glenn Hotchkiss pushing him for the job.

It is an actual fact that the fair sex spends more money on rouge than the oil industry spends on tank paint. It gets results, however! Whoever heard of a man going out on a date with a 10,000 barrel tank?

I have a car . . . it never breaks down, never skids. It never gets a puncture. It never gives me trouble on steep grades and it never gets overheated. It has never got me into a collision or an accident of any kind. I do wish I could start it!

A piscatorial expert tells us, that there are fish in the sea that can travel faster than an express train. We might also mention that there are others in automobiles who just think they can.

If you must get married on a slender salary, however, be sure to pick a girl with a small waste.



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DRIFTING THRU DRAFTING . . .

By Bouley

APOLOGY

It's a doggone crime
To skip our rhyme
But we just ain't there
During overtime.

WE don't know whether we are a bit abashed in the presence of so many new faces or whether our operatives are all trying frantically to keep what friends they have left. At any rate our news this month is about as scarce as noon loungers on pay-day. Even our old standby, the Marriage and Carriage department has practically failed to function.

By the way, if Tag Gorman happens to hand out this issue of the *Consolidator*, just notice the squared shoulders and swelled chest. For he strolled around to the church one Sunday afternoon and quicker than it takes to tell it Miss Jeanne Eleanor Weymiller became Mrs. T. Anthony Gorman.

Much space in this column recently has been devoted to newlyweds and infants. Digressing for the moment we would like to acknowledge Charley Yater's silver wedding anniversary which was celebrated last month. Charley says it's all in

living right and playing golf. We agree that the average man doesn't argue much with his wife while he is playing golf, so if a fellow could just play it enough . . .

For some time we have considered disclosing some facts about several of the quiet fellows in the Engineering Department who apparently do most of their talking at home. But when we put some names in a hat and the first one drawn read "King Kong Koughlin" we gave up. Have you ever seen those flowers on Tom's desk wilt when he really gets going? Getting back to the silent ones, Dick McCraight, the Sage of the Ozarks, chose to do a little deep-sea fishing several weeks ago, but he was rather evasive about his results. When he was finally pinned down concerning his catches, he stated that the weather was rough and, being a Missourian, he was pitching instead of catching. After the boat docked Dick decided he was being followed by two men. When he finally reached the fish market the men followed him right in, but they turned out to be Etienne Dormoy and Hank Grawold, also there on business.

Leo Bowen, the man who never reads a newspaper less than a month old, pulled an Ekrem the other day when he locked his keys in the car with the engine and radio running and went to work. Unlike Cliff, he had another set of keys in his pocket when he was informed of his sleep-walking.

A young fellow in our Stress Department went calling at Del Mar one recent evening, and he took Clarence (Sultan) Gerber along to entertain his girl friend's girl friend. We personally think Gerber went along on a dare. When they arrived the extra girl turned out to be five comely co-eds. Since Gerber was too far away from home to back out he made the best of it and entertained the gals for hours with tall tales of life in Colfax, Washington and San Antonio, Texas, which represent the ends of the earth to Clarence. When it was time to leave Gerber had to be coaxed away and now several mothers around Albatross Street are dismayed since Clarence is no longer satisfied to come and watch their children while they go out for the evening.

So until next month, fellows, stand back from the elevator—here comes "Dagwood" Taber!

"SOLILOQUY ON SILOS"
FURNISHED BY SEAMAN
EXPLAINING OVERLEAVE

Headed "Soliloquy on Silos", the following was printed in "The Observer", ship's paper of the U.S.S. Lexington, with an "editor's note" that the statement was turned in by a seaman to explain why he was overleave, and that names and dates are changed for obvious reasons. Except for these deviations, the statement is repeated as it was submitted:

U.S.S. LONG

Sept. 20, 1937

From: R. E. Wilson, S2c, U.S. Navy.
To: Commanding Officer.
Via: Division Officer 1st Division.
Subject: Overleave, reason for.

On Sept. 7, 1937, I left the ship on ten days leave at my brother's farm in Cobblerock, Ark.

On Sept. 10 my brother's barn burned down, all except the brick silo which was damaged at the top by the bolt of lightning which started the fire.

On Sept. 11 he decided to repair the silo right away because he had to get his corn in it. I was going to help him.

I rigged a barrel hoist to the top of the silo so that the necessary bricks could be hoisted to the top of the silo where the repair work was going on. Then we hauled up several hundred brick. This later turned out to be too many bricks.

After my brother got all the brick work repaired there was still a lot of brick at the top of the silo on the working platform we had built. I said I would take it all down below. So I climbed down the ladder and hauled the barrel all the way up. Then I secured the line with sort of a slip knot so I could undo it easier later.

Then I climbed back up the ladder and piled bricks into the barrel until it was full.

I climbed back down the ladder. Then I untied the line to let the brick down. However, I found the barrel of brick heavier than I was and when the barrel started down, I started up. I thought of letting go, but by that time I was so far up I thought it would be safer to hang on.

Half-way up, the barrel hit me on the shoulder pretty hard but I still hung on.

I was going pretty fast at the top and bumped my head. My fingers also got pinched in the pulley block. However, at the same time the barrel hit the ground and the bottom fell out of it, letting all the brick out.

I was then heavier than the barrel and started down again. I got burned on the leg by the other rope as I went down until I met the barrel again which went by

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Mike: "I've got my doubts about this liquor."

Ike: "Let's try it on Joe. He's sick anyway."

faster than before and took the skin off my shins.

I guess I landed pretty hard on the pile of bricks because at that time I lost my presence of mind and let go of the line and the barrel came down and hit me squarely on the head.

The doctor wouldn't let me start back to the ship until Sept. 16, which made me two days overleave, which I don't think is too much under the circumstances.



WING KEYHOLE

By Browne

Welcome back to Consair to Lou Hansbraugh from all the boys.

Army Armstrong "The desk builder" has given up hopes so far as desk building goes. (They threw it out.) Army says, "You should see my trailer. Ahem!"

Stephen Powell has had his hands full during Herb Ezard's vacation. Steve as usual has done a very good job of supervising the Wing Dept.

Geo. "Scotty" McLean smokes his cigarettes so short, the boys think we should buy him a cigarette holder to keep Geo. from burning his fingers so often.

If you want a good laugh, you should hear Tommy Guarntta sing the "Three Little Fishes!"

Stanley May received his diploma for attending night traffic school for six weeks. If you have any traffic problems, see Stan.

Charlie Wegner is now in charge of templates and skin layout for the outer panels, a very precise and particular job. We know Charlie can handle it as well as he has other responsible jobs in the past.

This is the last and final item on Gil Lance's goats. We hear we have been getting Gil's goat of late!

Ray Brady of Wings procured a new job at North Island. Ray has spent seven years with Consair and has made many friends in and about the shop. Sorry to see you go, Ray. Best of luck from us all to you all!



What does a man love more than life?

Hate more than death or mortal strife?

That which contented men desire,

That poor men have and rich men require;

A miser spends, the spendthrift saves,

And all men carry to their graves?

NOTHING

—R. Weidner.



Be careful you don't get Don Hall mixed with Don Hall, for both of them are in the aviation business here in San Diego. Donald A. Hall is our own Don Hall of *Consolidated*, while Donald T. Hall runs the Sportsman Airport in Encanto.

BADMINTON

ALL members of our badminton group are indebted to each other for the support being given our weekly Wednesday evening play. As long as we keep it up the courts will be reserved for our exclusive use. Need more be said?

Basing ratings on the results of our first tournament, the following ladder has been established. (Those who did not participate in the tournament have been placed at the bottom of the list regardless of ability.)

1. Lockwood	18. Wielopolski
2. Terry	19. Whitaker
3. Kastelic	20. Shonberg
4. Henninger	21. Willis
5. Bouley	22. Dietzer
6. Syren	23. Rasmussen
7. Beyer	24. Kennedy
8. Hoover	25. Staples
9. Kirk	26. Ehler
10. Wheat	27. Goddard
11. Farnsworth	28. Fleet
12. Pounder	29. Brooks
13. Robbins	30. Eckles
14. Tuite	31. Echle
15. Wells	32. Billings
16. Andres	33. Palsulich
17. O'Connor	

You are hereby individually challenged by the Committee to prove we're wrong.

Please observe these rules in challenging:

1. A player may challenge a person not more than two ratings above that of the challenger, i.e., No. 18 may challenge No. 20—not higher—unless or until No. 18 assumes higher rank.

2. Challenge must be made personally one week in advance or by 7:30 of the evening match is to be played.

3. Players must notify a Committee member when a match is to be played and must furnish the final score to a Committee member.

4. Matches shall be on basis of winning two games out of three.

5. The matter of a referee may be agreed upon by the players.

6. The challenger must furnish a new shuttle for the match—unless otherwise agreed to by the players.

The Committee ventures the opinion that Billings and Palsulich will be assuming new numbers in no time at all.

We're glad to welcome Ken Jackman and Jess Brown into the group, and we hope they'll enjoy the game as much as we do.

The Committee: Gilchrist, Henninger, Kastelic, Terry, Lockwood.



It is neither the wrongs that a man does, nor the many rights in atonement that he offers, but the sum total that marks the quality.

Answers To "Miss-it's"

A few of the maintenance men and maybe one or two others will recognize the windy rooms as those above the boilers in the main plant where the air filters, heaters and fans are located which supply much of the air forced into the paint shop. You may have looked at the neat layout of boilers and air compressors a thousand times and not been aware of these rooms directly overhead!

2. If you wanted to gum up your friend's watch without his knowing it, you would arrange to get him close to the Magnaflux machine in the welding department while work was being tested. Incidentally, if you developed a change in attitude, you could remove the trouble as simply as you introduced it to the steel springs of his watch, on the same machine.

3. Painted green inside, the dark room of the photo-laboratory is blacker than the ace of spades with the lights turned out. Few people are aware of what total darkness really is until they encounter such a dark room. The red light means go, because it's the light for printing and the work must go right along. When the other lights are turned up the green of the room paint shows up and the rush of the work is over.

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A piece of iron, a stunning curl,
A box of powder, a pretty girl.
Down comes the rain, away she goes,
A homely girl with a freckled nose.

"Are you the girl who took my order?" asked the impatient gentleman in the local cafe. "Yes, Sir," replied the waitress, politely. "Well, I declare," he remarked, "you don't look a day older."

The complexity of the inside of an airplane is about inversely proportional to the smoothness of its outside.

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COUGHLIN'S COUGHINS

THE Engineers held their monthly Golf Tournament at the Coronado Golf Course on Sunday, April 16, 1939, and it was a grand success.

Listed below are the winners of this Tournament:

FIRST FLIGHT

Low Net—Hemphill	70
Ekrem	70
Ring	70
Freel	70
Low Gross—Rhodes	83
Low Putts—Yater	28

SECOND FLIGHT

1st Low Net—Waller	70
Weber	70
2nd Low Net—Bauer	72
3rd Low Net—Gandee	73
Low Putts—Kirk	28
Low Gross—McGuiness	100

THIRD FLIGHT

1st Low Net—Rosenbaum	70
2nd Low Net—Ochterkerchen	72
3rd Low Net—Stacy	73
4th Low Net—Schurr	74
Low Putts—Growthal	30
Low Gross—Hinckley	117

A prize of 2 Golf Balls was given by Mr. Davidson of the Davidson Driving Range to the golfers of the 2nd and 3rd flight making the highest score, these were won by Mr. H. Golem, 112, and Mr. C. Gerber, 168. It sure does show sometimes it pays to count all your strokes.

On Friday night, May 19, 1939, at the Jacobs (Causeway) Driving Range, the Engineers will hold a putting contest. Prizes will be donated by Mr. Jacobs and all entrance fees will also go towards prizes.

The next Engineers Golf Tournament will be held on Sunday, May 21, 1939, at the Rancho Santa Fe Golf Course.

At last airplanes have feathers on 'em! At least the pilots now speak very knowingly of feathering the propellers.

ANSWERS

- Dimpled Head.
- Civil Aeronautics Authority.
- Rear Admiral John Towers.
- Skidding.
- Ornithopter.
- 650° F.
- Empennage.
- Chance-Vought and Sikorsky.
- Inter-coastal.
- Consolidated.

Why Does . . .

By Eddie Raymond

Why does Sammy Shepard from the Hull Dept. cry so much during a basketball game?

Why does Glenn Hotchkiss bet 15 to 1 on his basketball team?

Why does "Brad" Bradshaw go places to get items for his column, and then next day ask the fellows what happened?

Why does Red Kimble want to take air home for his spray gun?

Why does J. Patton want to compete with the experts? May be in the guzzling of beer after the affair?

Why does Mac McGuiness claim all greens at La Jolla golf course slope toward the Pacific, when they really slope to all seven seas?

Why does Al Ballard get Joe Merk's white coat to have his picture taken?

Those who live on expectation are sure to be disappointed—Joachim Nurate.

ALUMINUM TERMITES

Three Bureau Inspectors down at the ramp to inspect the Model 28 of the American Export Airlines, climbed aboard. As it was quite warm, one of them shed his coat, carefully leaving it on the side of the plane. One of the others soon emerged and was seen searching along the water's edge, finally selecting two nice creatures noted for inhabiting salt water and their ability to travel sideways. When the coatless inspector emerged he slipped back into his coat. His attention was directed to a large "bug" crawling on his lapel, while one of the group shot away with his movie camera. . . . "What kind of a bug is it?" he cried as he beat it from a position precariously near his chin, and then remarked, "How the h—do ya suppose that got in there? Think it was in the plane?"

Mike Doyle, American Airlines' Second Officer was standing nearby and naively remarked that it looked like an aluminum termite and probably came from inside the plane. Shaken somewhat by the close call, the hapless inspector automatically responded to a request for a cigarette by reaching into his pocket. His hand instantly came out . . . with another aluminum termite firmly attached to his finger . . . nice action photography!

For the balance of the day this particular inspector's inspecting was chiefly confined to the probable source of "aluminum termites" and who could have put them there!

Think!

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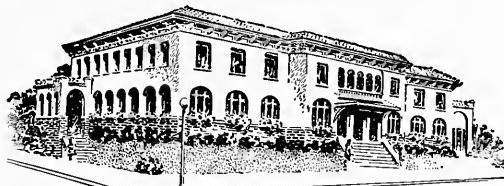
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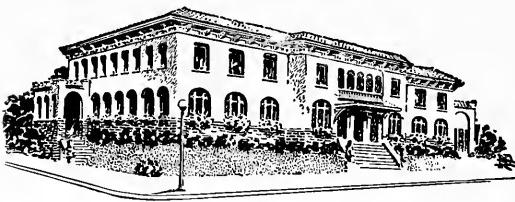
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At a women's debating society some time ago, the subject, "Which is more useful—a man or a strawberry?" was never settled, because the unmarried women voted for the man, and the married ones voted for the strawberry.

"Where there's a will there's a lawsuit."

The seven stages of conviviality.

Dry and decent,
Delighted and devilish,
Drifting and dreaming,
Delinquent and disgusting,
Dizzy and delirious,
Dazed and dejected,
Dead Drunk.

AERONAUTICAL I. Q.

By D. R. Kern

Credit yourself with 10 for each question answered correctly. Answers will be found on page 14.

1. What name is applied to an aileron having the nose portion projecting ahead of the hinge axis, the lower surface being in line with the lower surface of the wing?

2. What name is given to the great circle route between two points?

3. When an airplane is operating at an angle of attack greater than the angle of attack of maximum lift, it is called what?

4. Give the name of an auxiliary airfoil attached to a control surface for the purpose of reducing the control force or trimming the aircraft.

5. What is the name given a form of biplane in which the area of one wing is less than half the area of the other?

6. What is that part of the propeller-blade nearest the hub called?

7. When an airplane descends at a normal angle of attack with little or no thrust it is called what?

8. Name the country that now holds the speed record of an airplane.

9. In the construction of aircraft, why is more 245 aluminum alloy used than 175?

10. An angular displacement about an axis parallel to the normal axis of an aircraft is called what?

In the ordinary business of life, industry can do anything which genius can do, and very many things which it cannot.—Henry Ward Beecher.

YOUR SUMMER STANDBY—



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CONSOLIDATOR

Volume 4

JULY, 1939

Number 7

WELCOME, GOTTL!

From the Aeronautical Chamber of Commerce of America, Inc., comes the following news release:

"Edgar N. Gott, loaned to the Aeronautical Chamber of Commerce of America last February to assist the new president, John H. Jouett, in reorganizing and revitalizing the aircraft manufacturing industry's trade association, returns to his duties as vice-president of *Consolidated Aircraft Corporation* at San Diego, California, on June 15.

Mr. Gott carries with him the affectionate regards of skipper Jack Jouett and all the members of the staff and the hearty thanks of the Executive Committee which, in a resolution, stated in part that it is gratified to learn of the valuable services which Mr. Gott has rendered to the Chamber and desires thereby to express its appreciation thereof."

To add our own little bit, we knew Ed would do a good job and we'll be glad to see him back once again. Present rumors have it he will be in San Diego in the fore part of this month.



Attention is called to the splendid article appearing in the May 31st issue of the national magazine, the American Machinist, dealing with *Consolidated*. This particular issue of the magazine has a large section devoted to the subject of industrial mobilization, and we are particularly honored in having been selected in the aviation field for so complete an analysis. Some ten pages are devoted exclusively to our plant, equipment, production facilities and potentialities, and the article is liberally illustrated with photographs taken by Otto Menge, some of them selected from recent issues of the *Consolidator*. The article is well worth reading and seeing.



It's a fact, however, that most automobile drivers are in a great hurry to pass simply because they are anxious to get out in front so they can slow down.



Remember this: A warning sign can't shout, but it is not nearly so dumb as the guy who disregards it.

PONY EXPRESS

AT the time we go to press, events with *Consolidated* airplanes are paralleling in spirit and deed, the actions of the breathtaking Pony Express of our earlier days. Headed this way, and probably churning off miles at a rate and a "horsepower" scarcely conceivable even to the daring of the early Pony riders, is the twin-engined flying boat, Guba. . . .

So swiftly do these modern events transpire, and so fully informed are we of their happening at almost the instant they take place, that we scarcely realize the magnitude of the accomplishments as they pace off progress. From over two-thirds of the way around the world the Guba is winging its way, covering in its stride the vast expanse of the Indian Ocean . . . breaking a precedent by traversing by air for the first time, the last remaining ocean to be so encompassed. . . .

The last remaining ocean on this shrinking world has fallen to mechanical horsepower, mounted by these riders of the last vast expanses, repeating on a magnificent scale the early exploits of the shuttling Pony Riders. . . .

Hollandia, Port Moresby, Sydney, Port Hedland . . . Isle of Cocos, Diego Garcia . . . Seychelles . . . the distant specks of the world are left behind one by one on the swing of the galloping horsepower, until around July first the Guba will have arrived in San Diego. The riders will change their trusted mount. . . .

Here, being groomed for the first delivery of a military plane ever to be made by flight across the Atlantic, is the twin-engined Model 28 *Consolidated* built for the British Air Ministry. Crew members who will "unsaddle" from the trusty Guba and mount the P9630 (British Air Ministry number) will be: Russell Rogers as Pilot and Captain, Lewis A. Yancey, Co-pilot and Navigator, Raymond Booth Radio Operator, and Gerald Brown, Flight Engineer. It is possible that Squadron Leader J. R. Addams of the Royal Air Force, who is acting as test and acceptance pilot for the British Air Ministry in California, may accompany the crew on the delivery flight. Possible it is also that

Richard Archbold, captain and owner of NC777 (the Guba) and a representative of the *Consolidated Aircraft Corporation* will be aboard for the flight. . . .

The first hop of the flight to England is scheduled to start from San Diego about July 5th, and to pass over or close to: Phoenix, Albuquerque, Amarillo, Wichita, Kansas City, Chicago, Detroit, Lake St. Clair, Toronto, Ottawa, Montreal, Quebec, with the first landing in Botwood, Bay of Exploits, Newfoundland. This flight will encompass a distance in a single hop of 3,300 statute miles. At Botwood the take-off will be on a great circle course over the North Atlantic, across the center of Ireland, the Irish Channel and England, with the landing scheduled for Felixstowe (Ipswich) England.

The ship, destined for the British Air Ministry is a sister ship of the Guba in that it is a Model 28, designated as Model 28-5 and is similar to the American Export Airline's twin-engined survey plane.



TEACHING MRS. TO DRIVE

"Now, we're all set. Just turn the jigger over and push on the hickey with your left hand and pull down on the other little jim-crack with your right, then press down the doodad with your foot and pull the thingumbob at the same time, and when it starts you push down on the doo-funny with your left foot and yank the umptydiddy back, then let up the foot dingus and put your other foot on the hickey-madoode; and don't forget to push down on the hootnanny every time you move the whatyoumaycallit, and you'll be hunkydory, see?"—Troy Times-Record.



A small boy stepped up to the elevator in an Eastern business building just as the place was jolted by an earthquake. Doors flew open, people tumbled into the corridor, and one white-faced individual shrieked, "What happened?" "Geel!" said the small boy, "I just pushed the elevator button."



Attempt the end, and never stand to doubt; nothing so hard but search will find it out.—Robert Herrick.



EARLY TAKE-OFF . . .

WEDNESDAY, June 7th . . . 3:30 A. M.: The bright moon in its third quarter and a single star in the clear dark sky . . . a distant cock crowing . . . the faint tinkle of milk bottles and the barumph of a starting car . . .

Half an hour later, down on the ramp, light is beginning to break. The staccato sputtering of the American Export's auxiliary engine in the crisp air makes conversation difficult. There are but few persons about; besides the flight and beaching crews, less than a dozen persons . . . mostly wives and relatives . . . Mike Doyle is hustling around like sixty, Geo. Newman's in the cockpit, Carlson poking his receiver bedecked head out of the mechanic's station window now and then. Ehmer is apparently aboard at the radio controls, feeling out over the tenuous waves of the ether. Terrill, as unruffled as ever; Pat Byrne, back and forth.

A couple of seagulls squawk low and lazily, headed along the ramp. Two fishing birds plunk into the oil-like surface of the bay and take off awkwardly with more attention to the consumption of their breakfast than the technique of getting un-stuck. The brilliant lights of the North Island Naval Air station, and the twinkling ships' night lights, begin to lose their domination . . . it's growing light rapidly.

The members of the American Export Airline's Consolidated model 28 crew, and Mr. D. G. Richardson, the Airline's operations manager. Left to right: M. C. J. Doyle, T. S. Terrill, Pat J. Byrne, D. G. Richardson, Wm. W. Ehmer and R. V. Carlson.

Pat Byrne climbs aboard. There's a bit of hand waving . . . Mike Doyle climbs topside, as he calls it, pops the rear hatches shut, pops them open a moment later, then shut again, like a jack-in-the-box. The staccato of the auxiliary slows down as it takes the load for starting an engine. The right engine begins to turn, takes hold. The left follows a moment later.

Now there's just the whishity-clunk of the easing engines . . . Newman indicates above the noise, that moisture has condensed on the outside of the cockpit enclosure glass. Rags are fetched. Rubber-suited beachers boost one of their number up, Kline is boosted on the opposite side. The windshield is made clear. Byrne can be seen by the plane's lighting inside, arranging the papers he has just brought aboard.

There's that brief wait in which nothing seems to take place . . . then the signal to remove the chocks, and the beaching gear crew swings into action. The tractor, with line and block, eases the ship down into the water. Light lines, through the wing-tip floats, keep the ship headed squarely while the beaching gear is unfastened. The gear bobs to the surface and is worked ashore. Mike is once more popping up through the hatch. "OK, let her go!"

Easily the Model 28 begins to move, her propellers rumpling and skittering a soft pattern across the smooth water. Quietly and without apparent additional revs to her engines, she eases on out and heads for the Broadway pier. About a hundred yards from its tip she is swung and headed into the channel. Engines are gunned. There's not a hint of a miss. Then they're opened steady and she starts her run. Kline glances at his watch . . . exactly

4:35 A.M. There's no help from the wind, as the sock is dangling straight down. In just 25 seconds she is up off the step and climbing easily in a big swing around North Island and Coronado, and far over the southern end of the bay becomes indistinguishable in the pinkish haze. She is headed off to the southeast. To very sharp eyes she becomes visible for a moment as the first full rays of the sun strike her wet hull . . . then is completely out of sight.

And so another *Consolidated* twin engined model 28 begins her career. The plane, built for survey work on American Export Airline's trans-Atlantic route, made a two jump hop to New York, stopping over briefly at Galveston, Texas, and as we go to press is all poised, ready for her pioneering work across the Atlantic.

ROD AND REEL

THIRTEEN Rod and Reelers in quest of a large mess of fish for a fry left early Saturday morning, June seventeenth, and if you think thirteen is a lucky number ask Al Ambrose, Leo Bourden, L. McGiffin, Frank Milche, Ed Lang, John Hopman, Otto Bendt, Jimmy Wilkenson, Bill Roese, Connie Seaderquist, Glenn Hotchkiss, Bob Hardacre or Russ Kern. The aquatic vertebrates were all on vacation or sompin, anyhow they just wouldn't bite anywhere round the Coronado Islands. Our amiable Secretary, Glenn Hotchkiss, thought it really would be bad to go back without one yellowtail so he very quietly put into practice something he learned at a dude ranch somewhere about these parts. Yes sir, he actually lassoed a yellowtail right around the tail—Yippieeee. It sure looked strange pulling that fish out of the water tail first—and it won for Cowboy Hotchkiss the Jackpot.

Some of the boys think the reason for poor fishing was because of the fact Bill Roese and Connie Seaderquist were continually leaning over the rail of the Sportfisher feeding them something better than live bait.

Otto Bendt, the rascal, took home more fish than anyone on the "cruise"—he robbed the bait tank so he could face the folks at home without that guilty look.

But the Sportfisher II wasn't the only ship "cruising" about the Coronados this beautiful June morning. The J. B., with a load of *Consolidated* officials had the same luck returning with a happy group of sightseers who will swear there are no more fish around the Coronado Islands.

Roy Coykendall tells us he will go out and bring in a carload of fish for the club members anytime they want to have a good feed.

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We are indebted to our British representatives, Aviation Corporates Limited, for these views of their offices in London, England. The photo-mural on the wall in the left hand view gives considerable prominence to both our four-engined XPB2Y-1 and the PBYs. The central picture is a view from their window, of St. James' Palace. Note also the profuse use of our plane photographs in the right hand picture. These excellent views have rather whetted our curiosity as to how our representatives in other parts of the globe see their working quarters.

A Life on the Ocean Waves!

By Ernie Hodgson

A FEW weeks ago, our genial lead man, Bobbie Brabbon of Wood Shop, having explored the intricacies of Mission Bay in his 16-foot boat "Beauty" (outboard motor) decided it was time to conquer the Pacific Ocean.

He purchased a trailer for the boat, fire extinguisher and five life preservers. He got together his crew: Milt Hangen, MacGiffin, Lary Ireland, his son Jack Brabbon and himself. Having been told you could launch a boat any time at La Jolla, they loaded the boat onto the trailer at 4:30 a.m., arriving at the launching destination at about 5 a.m.

With Milt Hangen at the oars and Ireland pushing, the "Beauty" was launched and skimmed gracefully over the first breaker. Alas! One oar came loose, causing the gallant craft to turn broadside, where a second wave drove her ashore again after almost swamping her. In the next attempt they succeeded in getting clear. They reached a spot about a mile offshore. As it was inclined to be roughish, and there were no other boats in sight, they turned tail and beat it back to terra firma.

Just as the "Beauty" was snugly nestled on her trailer, four other crews of fishermen arrived with boats and headed for sea. Having gained new courage, our heroes decided on another venture, so they launched the boat, the oar came loose, she was almost swamped, and finally they got clear and out to the kelp beds. A little after anchoring someone noticed Bobby's pole dropping. (He was sick.) Mac and Ireland each caught one fish, the going was poor, so they asked Milt to row, but Milt said he was too weak. (He was sick.) Soon young Jackie Brabbon sickened also, So-o! Ireland and Mac manoeuvered the good ship "Beauty" back to shore, and it was unanimously agreed that it was too early in the year to sail the Pacific.

WING KEYHOLE

By Browne

BILL KEIGEL returned recently from a six-weeks vacation to Buffalo. Bill says Buffalo looked good, but he's glad to be back home and back to work.

M. Drake and J. Petit and Rock Creek lake get along remarkably well. During a recent fishing trip John Petit landed a nice sized trout (or was it larger, John?) only to drop it in the lake, but speed Petit reached out and grabbed the trout before it could swim away. Are you sure that's right, John?

Ask Bob Elo if he is advertising Wheatus or sumpthin'? Several of the boys remarked about a sign on the car in which he drives to work.

It is quite evident that Herb Ezard's job does not end at 4:00 p.m. Recent changes in the department have been effective in the early morning hours. We attribute this to Herb's homework.

C. M. "Duke" Stoll, Q.M. 1c Naval Reserves, is leaving July 8 to 22 on annual summer training cruise aboard destroyer U.S.S. Jarvis. The cruise destination is San Francisco where the exposition will be seen.

Mrs. L. Mineah presented her husband on May 28th with a fine 9-lb. baby boy, George Henry. Congratulations to both Mama and Papa!



Aviation Corporates Limited, our agents in London, to whom we are indebted for the very excellent photographs of their offices, are most centrally located there. They are only five minutes walk from the Air Ministry and very centrally located with respect to Buckingham Palace, The Chase Bank in Berkeley Square, Piccadilly Circus and the Admiralty, and the War Office in Whitehall, S.W.I. . . . As may be seen from the interior views, they have made full use of photographs of the PBYs and the XPB2Y-1 for purposes of decoration.

CONSARIANS ABOUT TOWN

By Fink

TEDDY EDWARDS can be found strutting about the plant, telling of the new grandson that has come into his family, a seven and a half pound baby boy.

Clyde Price (stick room) spends his week-ends riding the breakers on his new paddle-board which he has just finished. Nice work, Clyde!

"Whitey" Dake has been seen at the beaches with the same girl quite often a bit lately. He claims she's his niece, but that's his story. Whitey sure sticks close to her.

Willy Cullison (sheet metal) has just returned to the plant after a three weeks trip to Baltimore. He says his car used 24 cans of oil . . . or does he mean he used 24 cans of beer.

Quite a few Consarians were seen taking in the Follies reviews at the Fox theater. It seems that a large number of lodges held special meetings on that Friday night. I'll not mention names, for obvious reasons.

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OUR MOVIE . . .



FEW indeed were the visitors allowed a view of our plant activities during the building of the now famous PBY twin engined flying boats, which have formed so valuable an adjunct to the armed forces of the United States Navy. During that time, however, work was undertaken to secure a motion picture record of the production activities by our own photographic crew, headed by Otto Menge, head of the photo lab. Now, after months of work on its production, full and unconditional release of all views contained in that movie has been granted by the Navy Bureau. The whole world may now be shown and told, exactly how these PBYs were produced . . . a story of production of aircraft of which we have every right to be proud.

Our movie has been appropriately titled, "Building the PBY Record Breakers." It covers the whole story in some 55 minutes of fine photography packed with scenes from engineering thru the many interesting detail processes of fabrication, finishing, testing and flying . . . but a full appreciation of this recording in picture and sound, can only come thru seeing and hearing the story unfolded on the screen.

Heading the list of those responsible for the production is, of course, Otto Menge, without whose efforts the movie would not have been possible. Otto, from the very inception of the idea, was not only director and photographer for all scenes, but headed the work from the first faint wriggling of the script thru the last note of the sound track. While the actual shooting in the plant took but a comparatively brief period, much of the work was carried on out-of-doors at the ramp, North Island, and in the air. Otto was in the very thick of it, and also the vast amount of mechanical work in the trimming and laboratory phases of the production could only be left to his hands. The picture stands as a fine tribute to his photographic skill and direction.

Dick Hager of engineering, was charged with one of the most exacting phases of the picture for he was in charge of its production . . . arranging for all scenes and the shooting of the same. This was accomplished with an absolute minimum of interference with the plant, which was in full production. Dick handled this work admirably and threw in as a good measure his services as a technical advisor on all the scenes, and script and the narration.

The script, or sequence of scenes, upon which the movie was based, was the work of Norman Davidson, as was the finished narration, or running description of the scenes and operations. This had to be timed to a nicety to fit the rapid change of action and carry the full story as it ran. The narration in its final and approved form, was recorded on the sound track thru the voice of Rush Hughes, well known in radio work for his various programs. He did a very splendid job of the rather sizable task placed before him.

Working in close conjunction with the Menge, Hager, Davidson trio throughout the plant shooting, were the electricians and maintenance crew, who were indispensable in securing the proper lighting effects, and for much of the skilled arranging of equipment: Nick La Gamma, who could climb anywhere, and generally did, or who could fix or secure anything on a moment's notice. Tom Clark, who kept an eagle eye on the proper functioning of the electrical equipment (which incidentally necessitated special outlets and the running of special cables in order to carry the lighting loads). And to C. Hostettler, Roy Schultz, Ed Cord and Carl Sann for invaluable aid from time to time.

Our pilots George Newman and Bill Wheatley contributed directly to the movie, by handling the good old Fleetster in which Otto rode for flight shots, and some of the PBYs shown directly in the flight picturization. Their assistance made possible many of the splendid flight and aerial shots incorporated in the picture.

A tabulation of credit for the assistance and cooperation which entered the making of "Building the PBY Record Breakers" could go on almost indefinitely. The maintenance department built several pieces of special equipment, as well as installing the special power lines. George Marlor of the photo lab, assisted greatly in his capacity as projectionist during the tedious stretch of editing the film and timing the narration. He was capably assisted by Ernie Kurtz.

The cooperation received from, and the privileges allowed by the North Island Naval Air Station, greatly assisted in the vitally necessary picture-taking of our PBYs in the performance shots, delivery, etc. And to them we are most grateful.

Not the least of those who should be given full credit for the final film, is the

entire plant personnel. The bulk of the picture, of course, has to do with the building operations of the PBYS. In the scenes taken within the plant, the vast majority had more than a single actor engaged at his work. Several of the shots had well into the hundreds involved, yet the cooperation made possible the filming of these, with a surprising minimum of re-takes. In the big shots the photographic crew had to rely upon each individual worker's recalling the directions of a general bulletin, requesting that no one look at the camera, nor diverge from his customary work during the filming. In the close-ups, without the skill of every man in performing the work he knows so well, all would have been lost for it would have been an impossible task to endeavor to train actors . . . fortunately each man was more familiar with his work than the photographic crew could hope to be. The result was that each of the production shots of men at work portrays in a highly accurate manner, exactly the procedure as it was employed in the building of these record breakers. The praise for the manner in which every person carried out his work for the camera in making this highly valuable recording of the operations, can hardly be overdone.



No Smiles to the Gallon

"Fillerup?"

"Fillerup."

"Checker erl?"

"Erl's okey—but listen. You charge batteries?"

"Yeh, we charge batteries."

"How much?"

"Much as they need."

"Yeh, but what do you charge?"

"Why, ah, batteries."

"Naw, listen. I mean, how much does it cost you?"

"Doesn't cost us anything; we got our own equipment and we charge for it."

"Yeh, but how much would it cost me?"

"Well—You got your own equipment?"

"Equipment?"

"Sure. You going into the business you gotta have equipment."

"But I'm not going into the—Listen, I want to know if you charge batteries, and if you do charge batteries, how much you charge for charging batteries, and if you'd charge my battery and charge to my account what you charge for charging—Aw, skip it! Fillerup and lemme get outta here!"

—Michael Kane.



HOT SHOTS FROM WELDING

By Sechrist

WE welcome back Art Bommer, who couldn't dodge a one-way driver who was driving one-way on the wrong side of the road . . .

Bon Voyage to Eddie Cwick who has left us for points east, then Northwest. Also Adios to Ray Craft on leave . . . maybe Ray can cure that "house maid's knee" of his now.

The F.H.A. has gained considerable business from the home-buyers in our department, i.e.—Robertson, Kastelic, Roeckel, Kiegle, Sechrist, Kruger and Fougeron . . . yeah, and the A.A.A. had better watch Kurt Kruger, what with 5 banty chicks, a dog, three cats, 6 mice, etc. . . . Poor Kurt can't get to pick his avocados, figs or oranges . . . stough, Kurt!

Vic Perry says after Niagara Falls, Yosemite is kind of tame, but he wouldn't have missed seeing it. Incidentally Vic lays claim to the week-end jaunt championship of the shop. He's covered all the territory from L. A. to Mexico, from Yuma to the sea.

When asked how he got back to B'flo without a passport, he says he wore a disguise . . . must have been a lot of fun visiting all those joints . . . eh, Ben?

There seems to be a difference of opinion relative to the merits of B'flo and S. D. beer, but after the first five, who cares, says Jack Fleck . . . but anyone who goes to B'flo without getting a good old-fashioned fish fry . . . mmm! . . . well?

Stan Piontek is in the market for a car . . . too bad Ben Kiegle turned in his "flying A" model. There was a car that had everything including Asthma.

Gus Fugeron must have had that cap of his washed, or his ears lowered, 'cause we could really see his face the other day, and it looked real nice too for a change.

That wasn't sunburn on DeRemer's face . . . he tried to argue with the sand blast hose.



Bernard Shaw boasted in an article that he knew how to make a perfect cup of coffee. A country parson wrote to him, asking for the recipe. Shaw granted his request, but at the bottom of the letter wrote:

"I hope that this is a genuine request, and not a surreptitious mode of securing my autograph."

The parson replied:

"Accept my thanks for the recipe. I wrote in good faith, so allow me to return what it is obvious you infinitely prize, but which is of no value to me—your autograph."

Our Glider enthusiast, Jerry Litell, reports that it was just what the papa ordered . . . a boy! The name, Jetmund Vincent Litell, the date, June 12th and the weight 7½ pounds. Jerry had to take a week out, but all are reported as doing well now. Congratulations.



NEWS FLASH

E. L. Minch, of Tool Design, was seen in a well known jewelry store the other day * * * we learned from another source that the young lady's name is Miss Jean Pausiek * * * no, sir! We won't tell where we got the dope.



Born to Mr. and Mrs. Jess Brown of planning, on June 9th, a baby girl weighing 8 pounds. Mother, daughter and pop reported doing nicely. The young lady's name is Miss Roberta Ann Brown. Congratulations.



We had specific instructions to make a note, or the name would be mud, so here goes . . . "The great Carter is back!!" (Can't say we ain't seen our duty and done it, by crackey!)



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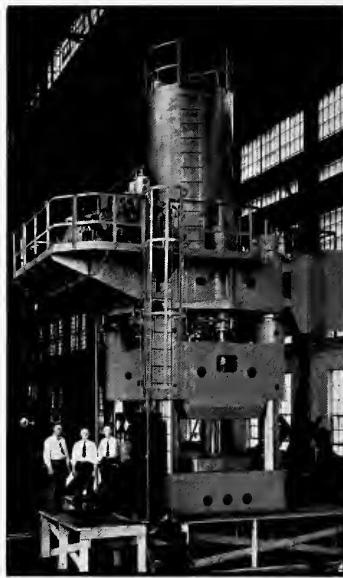
Our Newest Production Tool

By Wm. A. Maloney, Plant Engineer

WEDNESDAY, May 31, 1939, marked the beginning of the acceptance test of the 4,500-ton capacity Birdsboro-H.P.M. hydraulic press which is shortly to be installed in our plant. The test was conducted at the plant of the manufacturers, Birdsboro Steel Foundry and Machine Company, at Birdsboro, Pa., and was witnessed by Mr. J. L. Kelley and myself. Mr. Charles Gurling of the firm of R. E. Hazard and Sons of this city, who have the contract for erecting the press on our foundation, was also present, and stayed at Birdsboro until the press was disassembled after the conclusion of the test for the purpose of "Match Marking" the various component parts for ease of assembling, and to arrange for loading and shipping the heavier pieces in the proper order and position to eliminate any excess handling and maneuvering upon their receipt in San Diego.

Mr. Gurling, Mr. Kelley and myself left San Diego at various times, and traveling by different routes, met in Birdsboro on the morning of May 31st in the midst of a good old-fashioned "heat wave" with the temperature in the nineties with excessively high humidity. We found that we "Couldn't take it," and during the progress of the test we spent much of our time in frequent trips to the water cooler about 75 feet distant from the scene of the test. The photograph accompanying this article was taken just after my return from one of these trips, and while Mr. Kelley was on the way to the cooler. Standing on the test platform are Mr. Gurling, Mr. Paul C. Pocock, vice-president of Hydraulic Press Manufacturing Company of Mt. Gilead, Ohio, who manufactured the hydraulic pumps and controls, and myself.

After the necessary electrical instruments, pressure gauges and other apparatus



were set up, the press was started in operation at 11:00 a.m. on May 31, and run continuously at one minute intervals for a period of 24 hours at its rated capacity of 4,500 tons, after which it was run for two hours at 10% overload, or 4,950 tons capacity. During the initial test it was also run at intervals for periods of from thirty minutes to one hour on automatic control, when one complete stroke of full capacity was made each twenty seconds.

All requirements of the test were successfully met, the press performing perfectly in every detail.

The photograph gives some idea as to the size of this machine, which covers a floor area approximately 17 feet square, and extends to a height of 33' 3 1/4" above the floor level. At the level of the upper platform, the area taken up by the press is 19' 8 1/2" x 22' 7 1/4".

The total weight of the press is over 600,000 pounds, which necessitated the design of an extremely heavy reinforced concrete foundation to receive it. The heaviest member, the bottom platen, weighs 98,000 lbs. and was shipped by rail from Birdsboro on Monday, June 5th, and at the time this article is being written is being grouted in place on the foundation. The remaining parts, of which one piece weighs 80,000 lbs., another 76,000 lbs. and another 66,000 lbs., were shipped shortly after, and left Philadelphia by steamer on June 14th. They are due to arrive in San Diego on July 4th, and erection will start immediately after these parts are received. Complete assembly will take

from 20 to 25 working days. As the press is being set up in the Sheet Metal Department in the "low bay" section of the plant, it is necessary to perform extensive alterations to the roof above the press location, and to construct a "dog-house" in the roof above the press superstructure. Allowing for all necessary construction operations, it will be ready for use not later than September 1st.

The press is to be used for forming and blanking various airplane parts by the rubber die process. In this process a male punch only is employed, no female die being used. Mounted on the upper or moving platen of the press is a die pad 10 1/4 inches thick, made of rubber of a special composition and hardness best suited for this purpose, and restrained against flowing sidewise in a heavy cast steel box. The punches are placed in an inverted position on the bolster plate which is mounted on the bottom, or fixed platen, and aluminum alloy sheets of the proper size and shape are placed on the punches. The hydraulic ram, which carries the moving platen, is caused to descend, and when the die pad comes in contact with the work on the bolster plate, hydraulic pressure up to the capacity of the press is built up behind the ram, causing the rubber pad to flow fluid-like around the punches and to form the work to the contours and the shapes desired.

The dimensions of the rubber pad and bolster plate are 4' 8" in width by 10' 4" in length. The press is powered by two H.P.M. radial hydraulic pumps, each having a displacement of 190 gallons per minute at a pressure of 2590 pounds per square inch. The two pumps are driven by an electric motor rated at 200 H.P. specially designed for the purpose, which develops a total of 372 H.P. at the bottom of the press stroke. The main actuating ram has a diameter of 66 inches and the oil is admitted by gravity from a surge tank above the cylinder, into the ram cylinder, before pressure is applied, thru a filling check valve 12" in diameter. As the ram reaches the bottom of the stroke, and pressure is applied, this valve closes automatically and the pressure is built up in the cylinder directly by the pumps. Pump pressure is also used to raise the ram to the top of the stroke, after completion of the pressure cycle, by means of two smaller "pull-back" rams, 2,200 gallons of hydraulic oil are used for operating the press.

The plant of Birdsboro Steel Foundry and Machine Company is located in the charming, picturesque village of Birdsboro, on the Schuylkill River, nine miles southeast of Reading, Pa. Although the original

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plant antedates the Revolutionary War, and was engaged in the manufacturing of cannon-balls, cannon, anchors and anchor chain during that conflict, the present factory is up-to-date in every respect, has its own blast furnaces for the production of the basic pig iron used in the steel, and is one of the largest and most complete plants for the manufacture of steel castings and heavy machinery in the country today. It is the only industry in Birdsboro, and the citizens display a keen interest in the plant's activities and fortunes. Birdsboro is located in Berks County, which borders on Lancaster County, the two counties being in the heart of the "Pennsylvania Dutch" area, where the citizenry are noted for their thrift and cleanliness. The entire area is rich in Revolutionary lore, and there are numerous stone furnaces originally used for working Pennsylvania iron ore, and other pre-Revolutionary buildings still standing in an excellent state of preservation.



TUBE BENDING

"THE HOUSE BUILDER'S CORNER"

By Danny Whorton

BERT FREAKLEY went out one week end to see the house C. Flegal was building. He went out the day Flegal was painting around the windows. The fact was mentioned that Flegal was a better bender than he was a painter . . . he should have put more paint on the house, instead of the windows.

Slim Franklin is also planning on building a home in the very near future.

I went out to see Bert Freakley's home, which is nearing completion. It neared completion in more ways than one. His builder was burning the brush a distance from the house, when the wind sent sparks into a big pile of brush not far from the house. I wasn't there at the time, but Bert says the fire department and all the neighbors were over to help put the fire out. The fire didn't quite get to the house, but Bert says he met all his neighbors, anyway.

Clyde Hammett in his rush not to be late to meet Slim Franklin coming to work, picked up his apron and a few of his tools in a hurry. When he got to work he discovered the "apron" was his wife's laundry bag!

Herman Deischl had a Dachshund for about a week. It seems that the dog resented being chased out of the house at night, so he bit Herman. It didn't take Herman long the next day to give him away!

Drifting Thru Drafting

By JEFF BOULEY

PETE CARLSON has practically given up the putting game as being too expensive following his recent showing at a driving range where he shelled out a handful of nickels to several competing amateurs and pros from the engineering department. There seems to have been quite a controversy as to whether the buffalos on the nickels were squinting in the daylight or were merely winking over the matter.

And speaking of nickels reminds us of other wooden objects such as the featherweight duck which made the rounds of the departments last week. The duck now shares the fame of that other wooden animal, the Trojan horse. When the duck was tossed at Chuck Freeland he moved all around in the roomy shoulders of his new sport coat in trying to evade the duck. Bud Moerschel moved his toes out of the way first and then tried to catch the missile. Bud vows it was the fastest he has moved in well nigh on to twenty years except when they used to conduct political campaigns with free beverages. Earl Wesp was passing out the Friday checks when he suddenly saw the duck approaching. He dropped checks, box and all in getting out of the way. It is no wonder Joe Penner acts a bit queer with a duck in his life also.

Our operatives report that both Don Kirk and Park Stacy are very much interested in various discounts lately, which leads to the conclusion that their single blessedness is very much in jeopardy and will probably end up in our Brides and Prides department soon. Bob Lutz has really settled down to orthodox married life now, for recently we noticed the good wife driving and Bob established in the back seat.

What with so many personnel changes these days in engineering departments, the average new employee must really travel light these days. We overheard Don Hall asking a new man if he had brought any razor blades with him. In fact, there is so much doing now that even our famous stock market conversation has gone to pot, with Sid Avery following the batting average of a certain big league ball player from day to day, Bill Schurr planning houses, and Ken Whitney just silent and looking a bit bewildered at the other two.

In giving our readers a peek at the amours of Gerber the Lothario, we unwittingly created a tumult in the manly

breast of another quiet young fellow. Although he despises coffee Walt George gulped down cup after cup of the stuff at a recent banquet because of the personal pulchritude of the pourer. He is still trying to figure out whether it was the coffee or the vision that kept him awake so long.

Since our recent scoop of the month in the discovery of termites in Bill Ring's desk, Bill has become "termite conscious" and he has made a patient study of the habits of the termite as well as methods for its control. He was conducting a quiet conversation with Bernie Sheahan one afternoon when he suddenly interrupted with an exultant yelp as he feverishly pointed at a termite nest on Bernie's desk. After he enthusiastically extolled the virtues of his termite control he produced a medicine dropper and bottle from his pocket and ceremoniously proceeded to treat the hole with—nose drops!

Basil Isham is working very secretly these days on an invention that he conceived during his recent sojourn in Europe. It is quite possible that in our lifetime we will be able to use the "Isham disintegrator". With this device one will be able to enter a booth and in such a manner as television transmit himself over telephone wires or radio waves and appear at the other end of the line in flesh. Basil says his most difficult problem is to make the gadget foolproof so that an absent-minded inventor or professor cannot use the device until he has finished dressing. Or so that central cannot give one the wrong number, in the event of which one might be deposited in the wrong boudoir with subsequent embarrassing moments.



There is a loss of engine power of 1% for about every 7° F. increase in the temperature of the mixture in the intake manifold.

"ALL AMERICAN HOMES"

W. W. WELLPOT

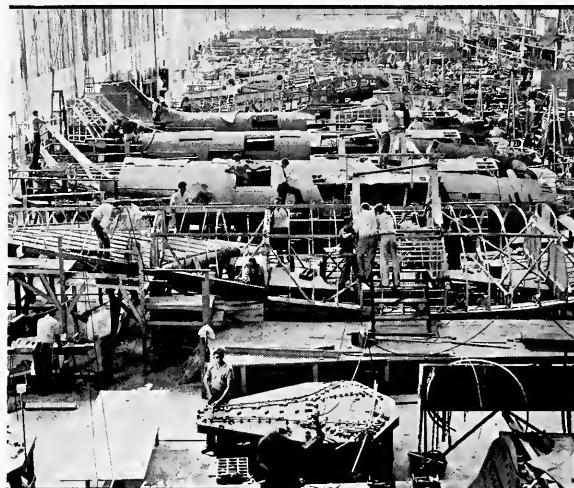
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THE HULL OF IT



IT was way back in the early days and, as Dutch Klein says, "When I couldn't talk so good like now." *Consolidated* was just completing her first riveted hull and it was ready for its water test. Dutch was told to stick around overtime and fill the hull with water. Everybody went on home but Dutch and Leo Newman, who was running the heat treating furnaces. Dutch looked around and found a couple of empty scrub pails and then headed upstairs to the men's lounge room where the water tap was. You must realize that aircraft manufacturing wasn't always performed in buildings as completely equipped as our present plant is.

The pails filled rapidly and our hull tester went downstairs, walked several yards and poured the water into the hull. He hurried on up and filled the pails again but when he got back to the hulls he couldn't see any of his first load of water. Somewhat puzzled he hurried up the stairs again and again and carried water to the

hull, but after several hours he had little results to show for his efforts. He asked Leo to help, but Leo put out the "No Riders" sign, so Dutch was stopped.

Suddenly he thought of a hose so he hurried out the door and down the street and borrowed several lengths of garden hose from accommodating neighbors and tried to fill the hull in that manner. In the wee hours of the morning the level of the water was still far from the top, so Dutch took himself off into a corner. He was somewhat perplexed, but he couldn't be stopped. His hose idea was OK but he needed more hose and bigger hose.

He remembered the fire hose, so he hurried to it, pulled it down from its carefully folded position on the rack and taking hold of the nozzle dragged and tussled with it and finally stuck the shiny end into the hull. He hurried back to the valve, turned the water on and then hustled back to see what was happening to cause all the noise.

Leo was jumping up and down but no higher or harder than the end of that hose which was giving the belt frames, stringers and watertight doors a terrific beating. Dutch hurried again to the valve and turned it off.

By this time he was cold, tired, wet, excited and mad, and all this only made him the more determined to fill that hull. Leo suggested he wait until it rained. But Dutch went out and got some clothes line and lashed the unruly brass nozzle down inside the hull, and again turned on the water.

Just when the level of the water was reaching the top opening Dutch decided his work was done, but thru the frontdoor roared the superintendent. Dutch greeted him with a sleepy "Good Morning," but the poor superintendent was lost in the rush of water that hit him when he opened that door. Dutch had not only filled the hull but also the basement, the shop, the parking lot and most of Kenmore Boulevard. His only remark was that if it was winter "we could enjoy, maybe, good skating."

Today the boys who construct our modern hulls turn in a job that not only looks beautiful, but is so constructed that the useful life of the hulls has never been definitely settled. And we still have to water test them, but if so much as one teary little drop shows up when the hull is full of water it's a calamity.

All this is due to the careful attention that is given to the minutest detail of construction by the lead men and assistants who are working under Glenn Hotchkiss, Hull Foreman.

The Hull Department is the largest manufacturing unit in the plant, and occupies the largest area. In this department will be found many men who thru years of experience have progressed through the many changes in construction and size of ships and today can readily interpret the engineer's desires. The record made in turning out Model 31-X Boat in a little less than 10 months speaks for itself.

Let's meet the boys who are pictured



By LARRY BOEING

The Hull leadmen: Left to right: J. Hopman, T. Pawlicki, W. Beyer, H. Roese, N. Wire, F. Popp, K. Klien, G. Wire, H. McEwan, G. Hotchkiss, J. Doig, J. Penfield, R. Hayman, B. Rowan, R. Malcuit, N. Tuevsky, A. Clark, W. Bubel, L. Fischer, F. Grossher, C. Carson and A. Schitch.

above. First, the Chief, Glenn Hotchkiss, not a boss, but a leader. He started with the old Thomas-Morse Aircraft Company in Ithaca, New York, and moved to *Consolidated* when that company became part of *Consolidated Aircraft Corporation*. Glenn is assisted by George Wire who has worked at *Consolidated* on every type boat we ever produced. Johnnie Penfield is in charge of Bottoms, and Frank Popp handles night supervision. These four men oversee and control the operations of this huge department, but they are highly dependent on this large group of lead men.

Freddie Grossher is in charge of Hull sub-assemblies which include bulkheads, beltframes, keel trusses, etc. He is assisted in turn by Norman Wire, Walter Babel and Louis Fisher. In the normal course of construction these boys handle hundreds of small details and fit and rivet them into complete units which go to make up the shape of the hull, act as bracing, or watertight bulkheads.

So complex is the Hull structure that its various units are broken down and various men are in charge of single operations. In this group is Ted Powlicki, who oversees bottoms construction. Harry McEwan supervises the men riveting the skin and deck plating in place. Al Clark sees that the stringers are properly placed and riveted.

The accessories such as the hatches and ventilators are installed by a group of men under the direction of Johnny Hopman, while Bert Napier and his boys assemble the fin units.

Bob Haymen has charge of the group fitting and assembling units on the bow of the ship which includes the Anchor box, bomber's window and bow gun turrets. Nick Tuevsky handles the assemblies of the all-important details that make up the pilot's enclosure.

Walter Beyer and his boys install all the furnishings such as floor brackets, seat supports and ammunition racks while "Scotty" Doig sees that the superstructure is properly completed and installed.



A large amount of material must be formed on the job to give the hulls their smooth lines. Andy Schitch handles this phase of the work. Remus Malcuit has charge of final cleanup and installs fittings and furnishings on the completed hulls and in a general way completes them for final assembly.

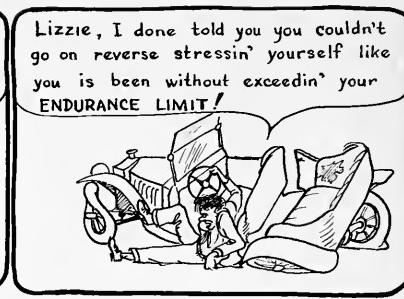
Overseeing the millions of rivets used in a normal contract is Kurt Klein who seems to always remember that first hull water test and sees to it that he carries no more water. He has Joe Drozdy, Kit Carson and Herb Cook assisting him. Just look closely at the next *Consolidated* built hull, and notice the appearance of the rivets.

These boys have grown with the industry and at some time or other some of them have seen service in every aircraft manufacturing plant in the country.

They are the backbone of today's industry. But they never forget the humorous incidents that crop up in their daily

work. They are all too anxious to tell how George Wire punched a hole through a chine one time, or how Dutch Klein riveted a tank in place and forgot he had a man behind it bucking rivets, of how one time a ship was balanced with two men working inside on the tail, and when the whistle blew and they came forward the ship stood on its nose. They'll tell you about seasickness and deep-sea fishing, about their pet hobbies, tropical fish, horseback riding, but best of all I like to recall their readiness to jump in as a unit and work and plug . . . and let one of their group get a setback, and in less time than it takes to tell, these boys do something about it.

We're sorry to stop here. We would like to tell you about LaJoie and his stories and fish, about Mayer, the Sheriff, who arranges the picnics and dances, and about Al Leonard the man who could replace all the comedians on the air with his witty sayings, but that's another story.



THEY SAY — WHAT DO THEY SAY ?

By Harry Campbell

PART I.

WERE we to receive a drawing of, say, a steel article to be machined which had on it this description: Material: CM Stl. a standard sample of which, when pulled in a testing machine, shows breaking strength equivalent to 100,000 lbs. per sq.in., we should immediately seek to express this description with fewer words. The thought is simply expressed by two words and some figures thus: Tensile Strength—100,000 psi. If the drawing said: Material—Steel, such that a 120° diamond cone under an applied load of 150 kg. produces in its surface an indentation of .00560", we should have every right to wonder why one or more heads shouldn't be examined. The same thing can be said with "Rockwell Hardness No. 70-C."

While the above expressions, requiring respectively 15 and 21 words, may be exact, they are too darned long-winded for practical use, and substitutes of one or two words are provided, as is obvious from daily experience. The shorter expressions or words, short-cuts to communication if you will, are seen to be symbols for definite chains of events or for specific processes carried out under controlled conditions. H.T. 125,000 psi and normalize, for example, represents a series of events requiring appreciable time to take place, and many words to describe exactly.

As more knowledge of the properties of matter is accumulated, description of that knowledge and of the behavior of the materials becomes more precise, so that to cover many different kinds of situations more of these short-cut words and expressions are required. Today there are so many that it is difficult to keep a clear understanding of all of them. These notes, not scientifically precise, have been put together to serve the writer as "refreshers" of what the short-cuts really mean. The most common terms relate to mechanical properties and processes as practiced daily in factories everywhere.

Tensile Strength. This is usually the greatest load which a material can sustain when pulled upon from opposite directions. Expressed as lbs. per sq. in. of cross-section.

Compressive Strength. Usually the greatest load (expressed as lb. per sq. in.) the material can sustain when acted upon by two opposing forces directed to a common point within the test sample. One well known example of this type of test is trying to crush an egg-shell in the hands by pressing the ends of the shell having the smallest radii. Some materials fail in compression with a shattering break (i.e. the egg-shell), but others only bend or otherwise deform. In the latter cases compressive strength is taken as that value which produces a given state of distortion considered to be failure.

Yield Strength. The stress which produces a specified permanent set, generally 0.2%, is taken as the yield strength. As an illustration, consider a piece of glass tubing on which is scratched a pair of lines separated 2 in. Soften the glass tube by holding it in a Bunsen or alcohol lamp flame until a little pull will cause it to lengthen. Say it is pulled until the scratches are 2.25 in. apart. It will not snap back

to its original length as will a rubber band, and is said to have taken "permanent set," of 0.25 in. This is 12.5% of the original length, and the yield strength of that particular piece of glass for 12.5% set is the pull required to produce the set.

Elongation. Varies with form and size of test specimen. A measure of the amount of stretch in the test specimen up to the point at which fracture occurs. This test is generally performed on the specimens used for determination of tensile strength.

Young's Modulus of Elasticity (E). Obtained by dividing the stress in lbs. per sq. in. by the elongation or stretch produced by that stress. (Elongation measured in fractions of 1 inch.) This ratio holds only throughout the range in which the stretching of the material is proportional to the stress producing it. Beyond this range, or beyond the elastic limit in other words, the material stretches without additional stress application. E for aluminum: 10,000,000, for aluminum alloys: 10,300,000, for hard copper sheets: 16,000,000, for nickel: 30,000,000, for steel: 29,000,000.

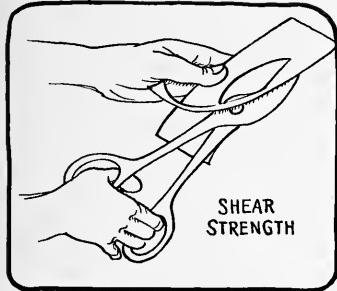
Shear Strength. Shearing action is represented by the machine called as such—the shear. A bar of material, say 3SO alloy, 1 in. square might require 11,000 lbs. applied on it by a knife blade, to be cut through. Rivets are subjected to shearing forces, as are also beams. The edge distances in riveted joints must be such that the sheet metal will not shear out from around the rivet under normal loads.

Endurance Limit. This is the stress value at which a great number of cycles of reversed stress may be applied to the material, without failure. It is used in design to insure that failure from stress reversal will not occur under any ordinary condition of operation. The endurance limit is generally appreciably less than

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SHEAR STRENGTH



It has been rumored that your opponent has occasions of mental alienation, incoherent morosity, or it might be said, frenetical derangement - What would you say?
He's just plain NUTS!
Too long winded for practical use -



YIELD STRENGTH....

THE STRESS
THE PERMANENT SET

the elastic limit of the material. An example of the significance of this factor may be seen in the effect of repeatedly reversing a bend in a metal strip. The strip will fail at the bend, at a stress considerably smaller than the stress required to pull apart the strip in tension.

Density. The measure of weight per unit of a material, as, density of steel is about 0.284 lbs. per cu. in.

Specific Gravity. The measure of weight of a material compared with the weight of a standard volume of water. The standard volume is usually taken as the cu. ft. and to say that the specific gravity of a material is 3.3 is to say that the material weighs 3.3×62.5 , or 206.5 lbs. per cu. ft. The **density** of water however, is 62.5 lbs. per cu. ft. (Water, here refers to fresh water.)

Hardness. The measurement by Brinell, Rockwell, Scleroscope, and Vickers, numbers of hardness of materials is an indication of the tensile strength. The Rockwell method, used throughout our plant because of its ease and simplicity, has been ably described in an article in October, 1938, *Consolidator* by Mr. Lawrence Boeing, to which the reader is referred.

(To be Continued.)

FINISH NEWS

By Max Goldman

WELL it won't be surprising to see some day, "Slim" our "Land-Lubber" sailor, O'Donnell, come to work singing like a canary, as he is going to raise canaries in his back yard.

Al Griffith and his friend Ollie Stewart are sure keeping themselves very busy these days in the Final Assembly touchup. The boys hope to see you both back soon in the Paint Shop.

Ollie Stewart says he will go fishing again when the water is not so rough.

Bert Naseef can't get the idea in his head that the California sunshine is pretty hot. One Sunday he stretched himself out on the beach and fell asleep. On awakening he found he had received a severe case of sunburn.

Our friend J. L. "Benny" Leonard had a wonderful week's vacation staying close to home this time.

George Smith must have had a wonderful time last week-end at the Eagle's convention . . . he's still talking about it.

Glad to see you back at work, Airhart. You must have had a severe injury to your leg that required you to walk with a crutch. Hope to see you soon without the crutch.



At 20,000 feet altitude, gasoline will boil at 100° F. At 30,000 feet to 35,000 feet it may be necessary to provide gasoline coolers.

WOOD SHOP CHIPS

By J. E. Hodgson

Born to Mr. and Mrs. Earl Woolsey, a son Jack Gordon, 7 lbs. 6 1/2 oz. of health. Hurry up Jack! *Consolidated* needs men!

All the boys extend their sympathy and best wishes to "Bill" Weaver, with the hope that no lasting harm will result, from the accidental injury he received recently, while working on his engine.



W. L. Hartsman of the Tool Room came in on Monday wearing an extra large smile, and no wonder . . . June 17th was the date and Mrs. Harstman presented him with twins! The name problem has been solved: There was a boy and a girl, so the names are Kerry Mae and Gerry Ray . . . congratulations and thanks for the cigars!



The presence of carbon monoxide is determined thru the use of a Hopcalite cell. The Hopcalite acts as a catalyst in converting the carbon monoxide into dioxide, producing heat in direct proportion to the amount of the monoxide present.



BEHOLD THE FISHERMAN
"He riseth up early in the morning and disturbeth the whole household. Mighty are his preparations. He goeth forth full of hope. When the day is far spent he returneth, smelling of strong drink, and the truth is not in him."

—Revelations 4-11-44.

WHY DOES

By Eddie Seaderquist

. . . the wife of a sheet metal worker want to know if Connie Seaderquist is a blonde or brunette and what department she works in?

. . . Larry Boeing have trouble using a right hand gage on a left hand thread?

. . . stock chaser No. 23 brag about having his money on winning horses, when he really plays the merry-go-round?

. . . Ballard, Craig or Coughlin lose so gracefully in the summer league bowling?

. . . Lou Miller shiver when someone suggests an ocean fishing trip? "Can't take it," he says.

. . . Larry Boeing bemoan the fact that he lost his stooge in La Jolla?

. . . Connie Seaderquist go deep sea fishing when he never wets a line? "But I sure fed the fishes," says Connie.

. . . Emerson Roy promise to caddy for everyone, then refuse to do so?

. . . Roy Coykendall beg and plead with everyone to go fishing with him?



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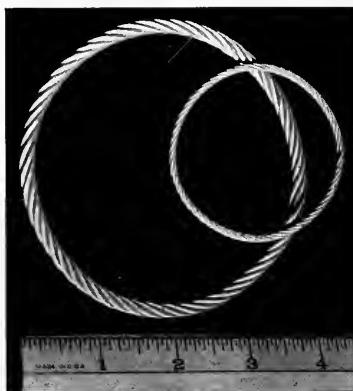
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WE COVER THE CITY



At left: A sample of splicing of cables done by Gus Johnson, to show how a clever splicer can make an endless cable. (Possibly this is the answer to the old saw, "How long is a piece of string?") Center: Gus Johnson inserts a cable terminal end in the swaging machine while his right hand man, Ernie Roekel looks on. Right: Two cable swaged terminals. The lower one has been cut away to show how the terminal grips the cable by being formed around each wire. At the bottom is a sample of the older method employing a thimble and the hand splice.



CONTROL CABLES . . .

WHEN Gus Johnson, who heads the cable group in the bench department, started learning about cables, there just wasn't any *Consolidated*. That was 30 years ago, and he's been working with cables ever since. Gus started accumulating his knowledge of cables, or wire rope, when he went to work for the American Steel and Wire Company back in 1909, and he's been adding to that knowledge ever since. There's little about cables that Gus doesn't know from firsthand experience, for he has worked at every phase of cable making, and there's little about their behavior he can't explain. There are some 1,800 feet of control cables in each PBY, just to give you an idea of the part played by the group Gus heads.

Gus actually started in the bar mill with the converting of steel ingots into pigs, and pigs into rods. After the making of the steel, the conversion of the pigs to rods is the first step in cable production. The rods are rolled from the pigs while they are hot, and are fed back thru successive rolls until the outside diameter has been rolled down to a diameter of from $3/16$ to $1/8$ of an inch. This rod is then

coiled into rolls about four feet in diameter for easy handling and shipment to the various wire mills.

Gus not only gained experience in the rod mill, but in the wire mill as well. The rolls of rod, on being received by the wire mill, are annealed, pickled and carefully cleaned in preparation for the drawing of the wire. The wire mill, in contrast to the rod mill, works the rod down to the proper sized wire for the cables or rope, while the metal is cold. Being worked cold, it of course becomes quite hard. $3/16$ rod, for instance, may be drawn down to $3/32$ wire which is quite hard. To reduce the wire beyond $3/32$, it must be annealed, pickled and carefully washed and cleaned once more, before it is drawn down farther. Cleanliness as well as softness due to annealing is essential for good wire, as bits of foreign matter drawn thru the reducing die with the steel, would cause flaws in the finished wire.

A difference, besides the temperatures at which rod-making and wire-making is carried out, is that rod is rolled and wire is drawn. The wire mill pulls the rod or annealed wire thru single piece dies. The hole in the die thru which the wire is drawn is tapered and reamed to the exact size desired for the finished wire. These dies, of course, take considerable punishment as the miles of wire are drawn thru them, and the holes become enlarged in time. There are die reamers at the wire mills who devote their time to hammering the metal about the die holes back, and then carefully reaming the hole out once more to its proper size.

Steel is the material of most dies, but for very fine wire diamonds with minute holes drilled in them are employed. Fine wire, such as is used in aircraft cables, has been annealed and drawn again and again before reaching its prescribed size.

Following the wire drawing machines in the making of the cables are the stranding machines, a strand being a bundle of wires which goes into the finished cable or rope. Gus has operated these machines which accommodate 7, 19 or whatever number of wires may be used to form the strands. It is essential in this operation that the tension be adjusted properly so that the strands will have little stretch to them when incorporated in the cable.

The built-up strands are then assembled on the cable or rope machine which twists the strands into the cable. The majority of cables or wire rope as it is more generally called, and which is found in general use, differs from aircraft cable. Most of it of course is much larger, but the principal difference is that the core is made of hemp or manila, instead of a strand of wires. The reason for the use of the soft core is that it prevents the strands of wire from grinding against each other, acts as a cushion for the strands and also as a reservoir for the cable's internal lubrication. It has the disadvantage for aircraft use in the fact that this core becomes compacted in passing over a pulley under load and thus allows the cable to stretch. This is not particularly disadvantageous in the majority of industrial uses, but it is in aircraft applications. Therefore the aircraft cables have a steel core. This does not com-

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pact and the tendency to elongate is greatly lessened.

Gus not only worked on these phases of the building of cables, but he spent a considerable amount of time in splicing cables for hawsers, etc. This formed an excellent background for aircraft work which Gus entered when he joined *Consolidated* in 1927. At that time all aircraft cables which had to pass over pulleys were hand-spliced on their ends. This was and is, a skilled job which takes considerable time. Those cables which do not pass over pulleys, or in other words are not subjected to flexing, were wrapped with wire and soldered at their ends. None of the cables of that day were pre-formed. When you cut a length of cable it would start to unwind very easily and the cable, unless care was taken, would become a frayed mess at the end, quite difficult to lay back in its proper form. This was the status of airplane cable work when Gus started to splice cables for the PTs and NYs.

Since then two important improvements have been made. One of these is the pre-forming of cables. In pre-forming, each wire that enters into a cable is given the shape it will have to assume later in the completed cable, before it is assembled in the cable machine. Thus the assembled cable built up of pre-formed wires, has all the wires laying "at ease" within its structure. The wires and the strands when the cable is cut, do not have a tendency to fly apart. Pre-formed cable is easier to handle when making a splice.

The second improvement is the replacement of the spliced end with the swaged terminal. Instead of bending the ends of the cable assemblies over thimbles and laboriously interweaving and pulling each strand snug until a sound splice is accomplished (which incidentally took good judgment to make the cable come out to the right length) the cable end is simply inserted in the terminal and the terminal swaged down over it by machine. The swaging operation grips the cable with unbelievable force. In fact, the cable will always break before the swaged terminal will yield its grip.

In attaching the swaged terminal, the swaging action elongates the terminal somewhat. For this reason, one end is swaged first. Then the cable is carefully measured, making allowance for the elongation which will occur in attaching the remaining terminal and for the stretching of the cable due to proof-loading. Some allowance is also made for the slight difference in stretch which occurs between different reels of cable. This variation is not much, but when you are holding long

cables to less than 1/16 of an inch in variation as to length, it has to be taken into consideration. Gus explains the slight difference sometimes encountered in the amount of stretch between reels of cable, as being due to a slight difference in the tension exerted on the spools of wire in building up the cable. In other than aircraft work this slight variation would probably not be detected, but since each aircraft cable is rather highly proof-loaded, the variation does show up.

After the cables have been cut and both terminals have been swaged on, they are placed in the proof-loading machine and automatically loaded to 60% of their ultimate strength. They are held at this point for 3 minutes and then released. Before the advent of the present automatic proof-loading machine (which incidentally was designed and built here in our plant) the cable proofing and stretching was done with a lever arm and weights. The idea of proof-loading, besides proving that the cable will stand up under its design load, is to pre-stretch it. This prevents the control system from becoming "sloppy" due to stretching under normal usage.

All cables, after proof-loading and inspection, were formerly soaked in a boiling solution of white lead and tallow. This was to provide lubrication and to protect them against corrosion. The soaking occupied a considerable period of time to insure the full penetration to the innermost portions of the cables. Now the new rust preventative, Paralketone, is being used for this purpose and may possibly supplant the long used lead and tallow.

Flexible cable, which is composed of seven strands of seven wires each; extra flexible, which is composed of seven strands of nineteen wires each, and non-flexible cable is used. The flexible and extra-flexible cables find by far the most predominant use. Where it is necessary to run control cables near the compasses,

stainless steel cable is employed because of its non-magnetic qualities.

While the aviation industry is a comparatively recent innovation, the progress that has been made is often taken as remarkable. There is one thing about this progress, however, which is not so readily apparent and this is the fact that the mechanical skill and knowledge assembled behind the aviation industry extends much farther than is appreciated. Gus Johnson's thirty years of experience with cables and cable making is a good example of this. The rapid progress made is based on a very wide footing of experience and knowledge.

Remember, when you get down in the mouth, don't take it too badly. Jonah came out all right.

Metalsmith: "Now I'm going to remove this iron from the fire and lay it on the anvil. When I nod my head, hit it hard with the hammer."

A doctor received a note which read as follows:

"Please call and see my husband. It's his head. He's had it off and on all yesterday, and today he's sitting with it in his hands between his knees."

And says the colored gentleman, "Jegge, ah pleads guilty an' waives the hearing." "What do you mean—waive the hearing?" he was asked. "Well," he replied, "Ah jes' doan wanna heah no moah about it, tha's all."

There's one sure cure for the blues in this world. I recommend it to you . . . go and do something you don't want to do for somebody else.

These words should be stuck on every windshield—"What has not happened to me in more than ten years of driving—can happen in less than ten seconds."



Consolidated Philosophy

The happiness of your life depends upon the quality of your thoughts, therefore guard them well.

Thoughts reveal character.

Thinking is the talking of the soul with itself.

The victory of success is half won when one gains the habit of work.

It is the merry heart that maketh the cheerful countenance, and it is the cheerful countenance that spreads cheer to make other hearts merry.

People who are worthless are not talked about very much. It is the man who is trying to make the most of his time and talents who is a target for the abuse and aspersions of jealous minds.

If you have idle time to spend don't spend it with someone who hasn't.

The measure of a man's character is what he would do if he knew he would never be found out.

It isn't the hope or the wish or the dream! It isn't the vision, the thought or the scheme; it isn't the aim and it isn't the plan—it's just what he does that determines the man.

He who knows not and knows not that he knows not is a fool.—Shun him.

He who knows not and knows that he knows not is simple.—Teach him.

He who knows and knows not that he knows is asleep.—Wake him.

He who knows and knows that he knows is wise.—Follow him.

The man who graduates today and stops learning tomorrow is uneducated the day after.



FROM THE ALBUM . . .

1. Ralph Berg and his catch of Barracuda and Bass. 2. "Robbie" Robinson and his catch. 3. Three generations, John and Mrs. Cossar, Mrs. Schilling and son, Bobby. 4. Jack Benkner and wife Kathleen look happy, but, OH! poor turkey! 5. Campbell Murray holding a bone from a whale which was landed some time ago at Imperial Beach. 6. Believe it or not, Bill Gilchrist at work! 7. Group at Mission Beach, comprises Eddie and Mrs. Rimmer, Bob and Mrs. Brabban and neighbor ladies. 8. D. W. Carlson looking into Grand Canyon, May 28, '39.

HULLabaloo

By Al. Leonard

SAMMY GALLASCO is rapidly losing weight working at his combined job of riveting and desk polishing. Not only will Sammy fill your requisition for you but he is only too glad to get what you want, deliver it to you and come back every ten minutes to see how you are getting along.

Freddy Grossher finally overcame his thirteenth hole jinx to win the second Hull Department golf championship. Mike "Interior Decorator" Brooks almost had the match won but he said he was so anxious to get home and do some wallpaper pasting before his wife got hold of him and did some pasting, that he just couldn't play his usual game of golf.

George Wire says, "Isn't it quiet without 'Yap-Yap' Hopman around."

Where was George Landy the other morning when some of the boys stopped to pick him up? There was a large "Do Not Disturb" sign stuck on his door. We hope he will have a good excuse ready as his wife will be home next week.

The Hull Dept. claims the record for all time in making the greatest number of trips back East. One Hull man says he counted no less than 3,126 Hull families on the road on his trip. He said there were many more traveling at night that he couldn't count as he only drove his car in the daytime.

A Hollywood screen talent scout came down and gave certain Hull men screen tests for a pirate mob scene. They were successful and will appear soon in a new film.

Their pictures will be found elsewhere in the *Consolidator*.

The Hull Dept. has in its midst a new dispatcher who can sure take it, hard luck Bradshaw by name . . . can be seen limping thru the plant most all hours of the day. First was an auto accident (taking an island for a white stripe while sober for some reason) Brad rolled his car over several times bruising himself here and there, but he healed quickly, only to sprain his leg by doing an "immelman turn" off the amphibian buck. Due to carrying a heavy cast on his leg Brad has been locked up in the stock room several times, being unable to make the door at quitting time.

Don't go into debt trying to impress the Jones family, who are probably in debt trying to impress you.

Worry is the interest paid by those who borrow trouble.

The more extensive a man's knowledge of what has been done, the greater will be his power of knowing what to do.

What man can conceive, man can achieve!

ANSWERS

1. Frise.
2. Airline.
3. Stall.
4. Tab.
5. Sesquiplane.
6. Root.
7. Glide.
8. Germany.
9. 25% higher yield strength.
10. Yaw.

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Your House

AT SHERWIN-WILLIAMS
PAINT HEADQUARTERS

FRAZEE'S
PAINT - WALLPAPER
Broadway at Tenth

PRODUCTION MINUTES

By "Brad" Bradshaw

SOMEWHAT handicapped in making the rounds this month because of a bad limp, which may have been the result of over exertion in my new position by attempting to carry a PBY hull into the paint shop, or a defect common to people who have walked too much in the mountain country. Draw your own conclusions, but I won't admit falling off the curb after leaving a "refreshment parlor" as contended by Jim Patton and Henry Golem, Machine Shop propagandists, who were probably having hallucinations of mistaken identity, usually caused from an overdose of "white lightning."

I find it more difficult to dispose of surplus food in the Hull Department than at my former location at lunch time. "Those guys in the Heat Treat may throw anything down their esophagus," says Hotchkiss, "but for me, it's gotta be whole wheat bread, pickles, lettuce, and onions both." (Probably want a fingerbowl and napkin also.)

Don't be alarmed by those loud noises heard on Tuesday evenings as it is only the Production lads blasting that spheroid commonly called "apple" or "pill", over the lot and the fans yelling "Kill the Umpire," as the *Consolidated* Softball League swings into action. Captain Les "Fireball" Matusek and his gang of fence busters, includes "Goofy" Rasmussen, "Rube" Coykendall, "Flash" Liddle, "Jitterbug" Gaughan, "Little Poison" Higdon, "Feets" Luppke, "Slugger" Clark, "Iron Man" Miller, "Carrot" Brady, "and" "Nick" Carter. The writer is managing the team, with duties such as taking care of bats and balls, paying the umpire when the boys forget the nickels, and mapping the strategy that lost the game. The fellows are all steamed up and are going to be tough to handle. "Throw 'em and duck," they say. It's a great game but funny after a hundred years they have never found an umpire who can see. Ump Bell says, "That remark will probably cost your team the championship."

The shy and retiring president of the Rod and Reel Club, whom we cannot name due to his dislike for publicity, arranged a fishing trip for the members and the least publicity given the affair the better. It seems the fish got wind of a certain A.V.O. written by Mr. Pres. and decided to cooperate, knowing that if a record catch was made the news hounds would upset this executive no end. So, the little fishes just swam and swam and had a great time.

"Texas" Hotchkiss, finally in disgust, threw down his pole, grabbed a rope and lassoed one by the tail. It weighed 8 lbs., hardly enough fish to give "scurvy" to 14 fishermen. Now could that "Yogi" have had anything to do with all this?

Nothing short of European royalty will cause Ed Stewart to rush home and change shirts before serving as a guide for visitors. So the California Bankers Association members did not get to see Ed dressed in his best "Bib and Tucker" during their sojourn through the plant. A solution Ed, would be one of those reversible "in and out" tail affairs, that have been used in the Orient for many years and recently introduced at *Consolidated* by those up to the minute fashion experts Bill Liddle, Ted Anderson and Kel Aiken.

While on the subject of clothes we hear Liddle is offering a dazzling "Robin Egg Blue" pantaloons creation for sale at reduced price. The color, according to Bill, is identical to a coat worn by Bing Crosby and he is selling because the "halo" it produces detracts the force from their work. But confidentially, Bill just learned that what Crosby was wearing turned out to be a horse blanket he was using to try and scare one of his "bangtails" in to first money. Better luck peddling them south of the tracks Bill.

Nick "Depopolas" Tuevesky, Hull Department's gift to the field of music, has moved his piano, by choice or request, to his new mountain cabin in the Lagunas. Glenn Hotchkiss, Harry McEwan, Frank Popp, Geo. Landy, and Hank Yogerst were the "muscle men" that moved the music box to the new location where it will remain unless the coyotes object to Nick stealing their stuff. The persuader was a keg of beer and a picture was made of it being rolled up the hill but none of the imbibers rolling down.

Lloyd Bender is just about ready to bring that "trusty shootin' iron" of his into action again to protect his claim on the six square feet of space he has left after the Tool Design and Plant Engineering made their latest "land grab." "The way those invaders are jumping claims is unconstitutional," says Lloyd, "one more move and they will get both barrels." Gloating over their latest "putsch", Dictators Van Doren and Jim Kite say, "Phoebe to those squatters, if they can get by with that stuff in Europe so can we." Perry Ogden has been seen at Material Stores looking over the mezzanine which

may result in the birth of an idea. Paul Hoch and Bill Holman contend that it's a coalition and fear they may suffer the same fate as the Czechs and Roumanians.

A mysterious "Yogi" that came into our here-to-fore bustling little city of La Jolla which has always supplied our column with some choice morsels of news, has put a cramp on the writer and we wish to protest. It seems this meditating philosopher has used his magical powers to the extent that those once carousing playboys now think they are very aged. Instead of making the rounds and digging up some excitement, they go quietly home, read a good Hindu book, and go into a trance until work time. We notice one of the disciples is letting his hair grow and when last seen it was about ready to braid. There isn't even any entertainment left as the "Yogi" has eaten all the radio tubes in town.

Flashes along the grapevine during the month informed me that: The last traveler with a "green tag" stamped by Jim Eisman was on Saint Patrick's Day. Frank Morse is not collecting the neighbor's crankcase oil drains of late as he has another car, with top, engine and fenders. He's not hauling passengers now as this one starts without pushing. Bill Fleet discounts the rumor that he migrated into the south

DON'T BUILD UNTIL

you see our Village of
MODEL HOMES at 14th
and K Sts. When you see the
interior of these MODELS
your planning troubles will be
over. Seeing is believing. May
we be your guide and consultant
in helping you to decide
your NEW HOME. There
will be no obligation on your
part.

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EVERYTHING
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with the "carpet baggers." "Those remarks by Mr. O'Connor are fightin' words, suh," says Bill, "and if continued will mean another licking for the Yankees." Question: Is one classed as a Yankee because he lived all his life in North Tonawanda? Larry Boeing is getting a lot of additional work in the crib since Jerry Lytell took all his precision tools home to give the new baby an inspection. You are responsible Jerry, so be careful with those rejection tags. Jess Brown not to be outdone reports a fine 8 pound girl and describes her, as usual, with his hands when telling of the big one that got away. When you get a Bass that size Jess, you may win a prize. Eddie Kellogg processing spare parts informs us that it's very difficult to keep from writing an A.V.O. when he marks down a "Crib Inspection." It is reported one read, "Love and kisses to Larry from Eddie." If we could only get hold of that diary and pictures and print a feature article entitled, "Connie at Catalina," would Mr. Seaderquist have red ears. Walt Hasser was disappointed on seeing the Follies and moans "Darned if it ain't a fact the fan is quicker than the eye." Henry Golem, Dan Miller, and Roy Larceval are finding it more difficult to hide since that rack was installed in Machine Shop to designate their location. After watching Inspector Russ Kern leaping from bulkhead to beltframe in the PBY-1 hulls we can understand why he's a mountain climber.

Phone Jackson 2011 Chick Runyon
"The Blind Man"
NATIONAL
 VENETIAN BLINDS
University Window Shade Co.
 1023 University Avenue

Eddie Kellogg is given a chance to prove his alibi for attending Epworth League Sunday evenings on 43rd Street. That happens to be in my territory and it will be best for Ed to keep on the other side of the tracks.

Mr. and Mrs. Ray Hartmayer have been tabbed the perfect host and hostess by Tommy Butterfield after he made a casual call and with his usual cleverly placed hints was treated to a "short beer." "I really earned that drink," wails Tommy, "Thos Indian givers' got more work out of me during the next three hours than the entire Wing crew does in a day with Herb Ezard cracking the whip." Tommy paid that visit just before the Hartmayers began their vacation trip and we mean paid. Says Tom, "If I had bought that beer it would have been a nickel well spent."

That "poor house poker", one of the favorite indoor pastimes around pay day, is well named according to Jack Mulroy. After a session at Lou Miller's "clip joint" with such "sharks" as Tom Jones, Benny Leonard, Tommy Butterfield and the writer. "Combining Chief dispatching duties with playing 'Screwy Louie' will probably give me a place in the 'nut house' instead of 'poor house,'" laments Jack.

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 THIS
 SERVICE?

Cash

YOUR CHECK—
 We gladly make arrangements each week to offer you this friendly free convenience.

Your

Every automotive need can easily be taken care of in one of our 20 fully equipped departments in either of our two stations.

Check

Our very easy budget terms made available to you on all tire, retread and battery sales with only your "white slip" as identification. No delay—immediate service.

QUALITEE
Cottage Cheese
HOURS FRESHER



Serve it

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 FRUITS FOR A
 COOLING BUT
 NOURISHING MEAL

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 University

30th and
 El Cajon

TRADE MARK
Starrett
REG. U. S. PAT. OFF.

TOOLS AND HACKSAWS

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SPECIFY STARRETT FOR BEST RESULTS

ARE YOU IN THE
"DOG HOUSE"?

Send her flowers from

EXCLUSIVE
Florists
SIXTH and B STREETS
FRANKLIN 5-233

COUGHLIN'S COUGHINS

THE Engineers held their monthly Golf Tournament at the San Diego Country Club, Chula Vista, on Sunday, June 18, 1939.

This tournament attracted quite a few more golfers and it turned out to be one of the closest the Engineer's have had.

The scores and winners are listed below; also a list showing the handicap of each player.

FIRST FLIGHT

R. Miller	1st Low Net,	69
T. J. Coughlin	1st Low Net,	69
C. Yater	2nd Low Net,	71
C. Ekrem	3rd Low Net,	72
Moe	3rd Low Net,	72
B. Sheahan	Low Putts,	28
W. Ring	Low Putts,	28
P. Bourque	Low Gross,	84

SECOND FLIGHT

Robbins	1st Low Net,	65
I. Craig	2nd Low Net,	70
R. Schwarz	2nd Low Net,	70
D. Miller	3rd Low Net,	71
E. Raymond	3rd Low Net,	71
E. Watts	4th Low Net,	75
W. Devlin	4th Low Net,	75
M. Weber	Low Putts,	30
L. Layko	Low Gross,	98

THIRD FLIGHT

Hinckley	1st Low Net,	66
Gowdall	2nd Low Net,	67
Stacy	3rd Low Net,	71
Rosenbaum	4th Low Net,	73
Whitney	5th Low Net,	74
Taber	5th Low Net,	74
George	Low Gross,	103
Whitaker	Low Putts,	34
Achterkerchen	Low Putts,	34

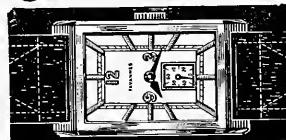
LIST OF HANDICAPS

FIRST FLIGHT

Hemphill	5	Purcell	17
Bourque	10	C. Ekrem	17
Rhodes	10	Sutton	18
Sheahan	11	Ring	18
Miller	11	Cary	18
Moe	16	Yater	18
Freel	16	Coughlin	18
Sebold	17	May	18

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TA-VAN
Endura
WATCH



- Waterproof!
- Shockproof

A marvelous 17-jewel watch for men. Two-tone gilt semi-index dial. Waterproof strap. Built for men of action.

only **37.50**

NO DOWN PAYMENT
A Year to Pay

BARANOV'S
Fifth Avenue at Broadway

SAY YOU SAW IT IN
THE CONSOLIDATOR

SECOND FLIGHT

Robbins	20	Farnsworth	24
N. Ekrem	21	Goddard	24
R. Schwarz	21	Bender	25
McGuiness	23	Golem	25
Weber	23	MacDougal	26
Gandee	23	Waller	26
D. Miller	23	Ohman	26
Kelley	24	Carlson	27
Jewell	24	Lutz	27
Raymond	24	Stephens	27
Watts	24	Devlin	28
Bauer	24	Dormay	29
Craig	24	Reade	29
Layko	24	George	29

THIRD FLIGHT

McGee	30	Rohn	37
Hinckley	30	Eldred	37
Stacy	30	Taber	40
Rosenbaum	32	Gowdall	40
Achterkerchen	34	McCabe	36
Whitney	36	Ranahan	30
Schurr	36		

See us regarding new

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Rates**

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Automobile Public
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a return of 15% on
the premium, pro-
vided no losses are
incurred during the
12 months the poli-
cy is in effect)

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COUNSELORS

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SAN DIEGO

"Coast to Coast Protection and Service"

FOURTH FLIGHT

Hall	45	Halsey	45
Heim	45	Winters	45
Kimble	45	Dolan	45
Minch	45	Palslrich	45
Gerber	45	Mohr	45
Whitaker	45	White	45
Rowan	45	B. Craig	45
Clements	45		

The next tournament will be held at
the La Jolla Golf Course on Sunday, July
23, 1939.

And, although there may be some truth
in the ancient adage that fine feathers
make fine birds, "filler de boeuf et pommes
de terre; hachis a l'Hibernais" is nothing
but good old Irish stew.

Famous Insignia

TAKES TO THE AIR



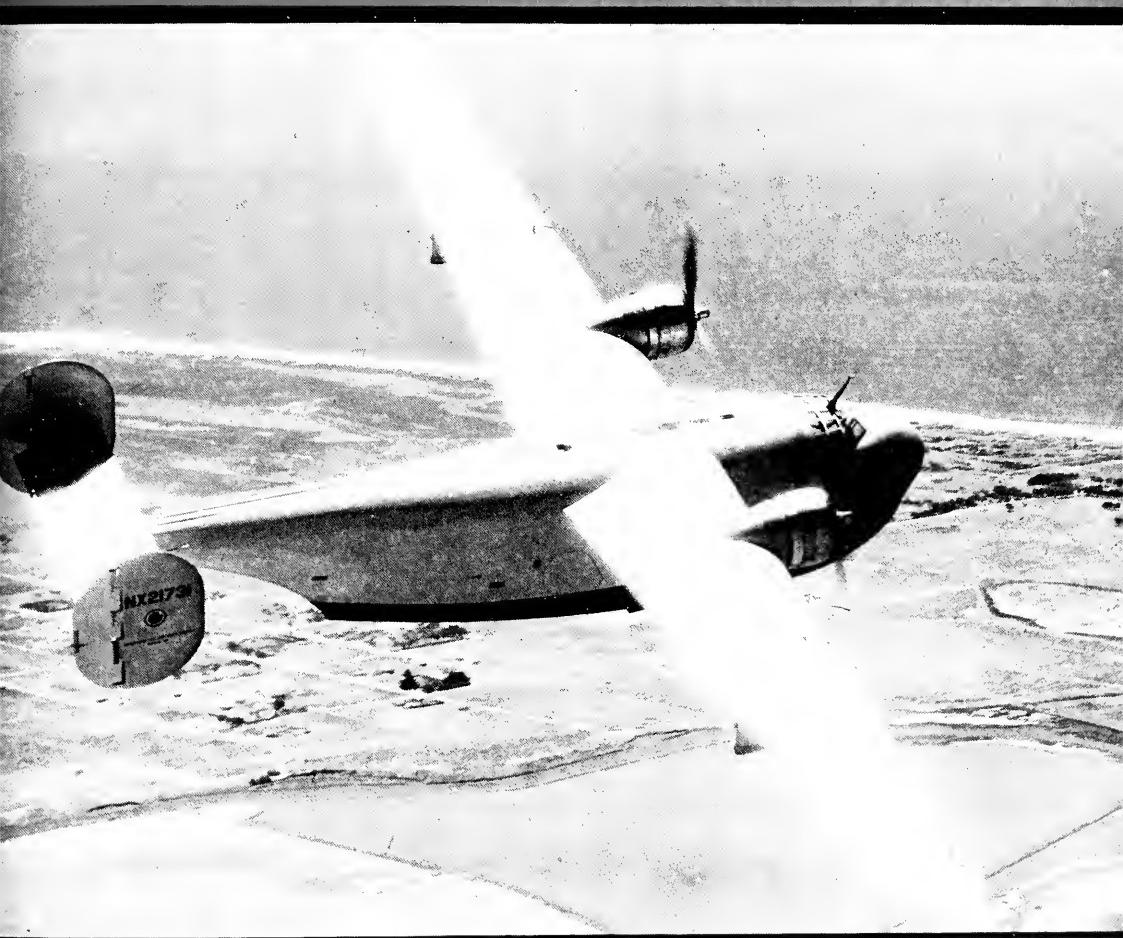
A new Consolidated Airboat, flying the flag of American Export Airlines, Inc., will soon wing its way over the North Atlantic to foreign ports of call. From the United States of America to important countries in Europe, Northern Africa and the Near East, this giant long-range flying boat will chart new paths in the air over and beyond routes of the famous American Export Lines, a hallmark of American shipping for the past two decades.



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SAN DIEGO • CALIFORNIA

Aircraft **CORI**
ESTABLISHED 1922

CONSOLIDATOR



MODEL 31 BANKING GRACEFULLY OVER THE SOUTH BAY AREA. . . .

AUGUST • 1939

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THIS
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Every automotive need can easily be taken care of in one of our 20 fully equipped departments in either of our two stations.

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Ran. 1667

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Members of the growing "Consolidated Family" . . . take advantage of our new "Budget Plan," permitting you to combine all types of purchases as a single item, and allowing as long as **FOUR MONTHS TO PAY!**

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57 DEPARTMENTS at YOUR SERVICE**

WHITNEY'S

BROADWAY 5th, 6th and E Sts.

Budget Department on
Mezzanine—6th Ave. Side

We Cash Payroll Checks

AERONAUTICAL I. Q.

By D. R. K.

Credit yourself with 10 for each question answered correctly. Answers will be found on page 14.

1. The intersection of the bottom with the side of a float or hull on an airboat is termed what?
2. What is the proper name given a tapered fabric sleeve pivoted on a standard to indicate the direction of wind at an airport?
3. Who made the first blind landing with an airplane and at what field?
4. What is the greatest recorded speed an airplane has attained to date?
5. A type of oil-damping device that depends on the flow of oil thru an orifice for its shock absorbing effect in a landing gear is called what?
6. Name the instrument that measures the attitude of an aircraft with respect to the horizontal.
7. What colloquial term is used describing the motion made when the tail of an airplane is swung from side to side to reduce speed in approaching the ground for a landing?
8. The after part of a keel (or extension of) is called what?
9. How many colleges are participating in the initial phase of the C.A.A. pilot's training program?
10. Who is chairman of the Civil Aero-nautics Authority?

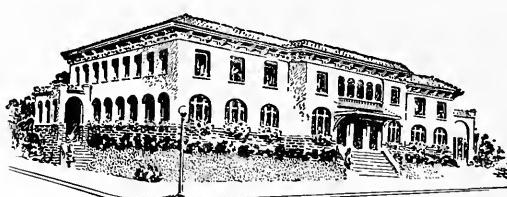
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**BURIAL
MAUSOLEUM
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CONSOLIDATOR

Volume 4

August, 1939

Number 8

BABSON VISITS PLANT

ON the afternoon of July 10th, Mr. Arthur C. Babson, director of the educational division of Babson's Statistical organization, paid *Consolidated Aircraft* a brief visit. Mr. Babson's work of course, is concerned with statistical analysis of business trends and the progress of the country, and he is in an excellent position to observe and comment upon industry and government in general.

Asked for a bit of comment or advice that might be passed along thru the *Consolidator*, Mr. Babson selected government as his subject. He stated that while we are naturally concerned with how the government affects us as individuals, we should adopt a broader viewpoint and consider how the policies or proposed plans of government will affect the whole community. Matters of government are not such that they may be brushed aside lightly, was his view; for we are, after all, all in the same boat, and that which will affect one will affect all. Working men, he advised, should concern themselves with government and government efficiency. Efficiency in government is necessary, he stated, for the best effects thru government, and the best ultimate effect upon the individual.

Caution your fellow workers, he advised, to consider not so much what a proposed bit of legislation will do for himself as an individual, but what sort of a load it will ultimately throw upon the whole community. The dollars we are putting aside today for our individual future security will be called into account later to supply the security we desired at the time we set them aside. Thus Mr. Babson gave his view of the attitude he believes the working man should take of government and government legislation. Mr. Babson's observations come, of course, from a viewpoint entirely outside of aviation, gained thru the study of statistical trends and their effect upon business, the welfare of the country, and the lives of the people.



Genius is one-tenth inspiration, and nine-tenths perspiration.

Another Routine Delivery Record

The U. S. Navy, flying our PBY airplanes seems to have a way of breaking records as a matter of "routine." On June 28th, 15 more PBYs were flown on a massed, non-stop flight from San Diego to Hawaii, to arrive without incident in 16 hours, 17 min. The previous time for one of these massed flights, in itself a record, was 17 hours and 17 minutes. Lieut. Comdr. Sam La Hache was in charge of the group. 105 officers and men were aboard. The distance is 2,253 miles.

In the interest of good citizenship, every employee of *Consolidated* should be absolutely sure that he or she is properly registered and eligible to vote at the special election of November 7th.

To be eligible to vote, it is necessary for all those who did not vote in the primary last August, or the general election last November to register by September 28th. The importance of being able to express your viewpoint at the polls cannot be over-emphasized.

INTERESTING FACT

Here is an interesting fact pertaining to the manufacture of large airplanes in the United States: Taking as an arbitrary measure of 'bigness' the wing span of 100 feet or more, and including the airplane equivalent of spares furnished; *Consolidated* has constructed more than three times as many such airplanes as all other manufacturers combined. This includes those built during the World War period. *Consolidated* of course came into existence considerably after the war . . . 1923, and figuring from that time, *Consolidated* has built approximately four times as many as all other U. S. manufacturers combined. Since a goodly share of these are the PBYs, many of the present plant personnel can take justifiable pride in having contributed considerably to the establishment of this fact.

MANY VISITORS

Many prominent persons paid *Consolidator* visits during the month of July. Among them was Lt. Col. W. O. Ryan, detailed to U. S. Army War College as Instructor in Air Service problems, succeeding Lt. Col. B. Q. Jones. Ryan visited *Consolidated* while making a nation-wide inspection trip to survey Air Corps facilities, including facilities of Air Corps contractors.



RECENTLY, Judge Clark of the Superior Court of the County of Los Angeles awarded *Consolidated Aircraft Corporation* a judgment of \$1,910.50 against Gilbert A. Henry, a former employee who was sent under contract at a 52% increase in salary plus expenses to Taganrog, U.S.S.R., to assist in the design and engineering work required for the maintenance of airplanes similar to the commercial versions of Model 28.

The judgment awarded by the court covered cash advanced to and expenditures made on behalf of Mr. Henry while he was enroute to the U.S.S.R.

Upon arriving at Moscow, some 600 miles short of his ultimate destination, Mr. Henry refused to continue with the other members of the party and returned to the United States.

Mr. Henry filed a cross-complaint against the company seeking to recover principally salary for a period of six months after he left San Diego. The basis of his cross-complaint was that conditions at Taganrog had been misrepresented to him by the company. He could not sustain this contention, however, because he turned back before reaching Taganrog, and the court would not permit him to testify regarding conditions about which he knew only through hearsay.

It is regrettable that Mr. Henry forced the company to resort to litigation in order to establish a claim arising from a contract which was deliberately breached by him.



There are 2,260 airports and landing fields in the U. S., 177 in California.

WELCOME

WE welcome to *Consolidator* Major E. R. McReynolds, recently appointed United States Army Air Corps Representative for the San Diego Area. Major McReynolds' assignment places him in charge of the Army Air Corps contract work in progress not only at *Consolidator*, but at Solar Aircraft Co., and the Ryan Aeronautical Co. as well.

Major McReynolds was born in Iowa on July 3d, 1892. His career in aviation began when he joined with the Aviation section of the U. S. Army Signal Corps. He started flying on June 1st, 1918, and was serving as a flying instructor at the time the armistice was signed. His work with aviation thru the Army has been running continuously for some 21½ years.

Three years of this was spent in Border Patrol Duty in Texas, flying along the Rio Grande. Then he was transferred to the Philippines where he served from 1922 to 1924 in Observation and Pursuit. He saw further service at Bolling Field, Washington, D. C., and later at Langley Field, Va. In his next move he became Army Air Corps representative at the Keystone Aircraft Co. during the years '27 to '30, and was in charge of the inspection of the Keystone Bombers. Concluding this assignment, he became Chief Inspector at the Material Division at Wright Field, Dayton, Ohio.

Adding still further to his rounded knowledge and experience with Army aircraft, Major McReynolds attended the Air Corps Tactical School at Montgomery, Ala., and followed this with two years of Engineering Duty at Randolph Field.

The Boeing Aircraft Co. at Seattle, was his next assignment on the maintenance of the B-17s, the large four-engined flying planes most popularly known as "Flying



Fortresses." He followed these to Langley Field as a member of the 2d Bombardment Group, in charge of maintenance and operation. Here he became the Executive and Engineering Officer on the now historic "South American Goodwill Flight", in which six of these huge planes carried 60 officers and men down the west coast of South America, across to Buenos Aires, and back to the United States . . . an outstanding flight with the journey down occupying but 33 hours elapsed time. The return was made by easy stages.

Returning, he was stationed at Langley Field until he received his orders to assume his duties as Air Corps Representative for the San Diego Area, his present assignment. Major McReynolds' ability, coupled with his wide scope of training and experience has made him probably one of the most qualified men to assume the responsible duties as Air Corps Representative for the San Diego Area. Major McReynolds, incidentally, holds a Combat Observer and Command Pilot Rating in the United States Army Air Corps.

Test Pilot Checks Arrival

Chief Test Pilot "Bill" Wheatley has at last come back to earth, or just taken off or something . . . we're not exactly sure. Hearing of an arrival in his family, we questioned Bill. In true test pilot style he immediately got out a note book, a piece of paper, a pleased smile, a pencil and a slide rule . . . or maybe the pencil was first . . . no, the pleased smile came first, then the pencil, slide rule, notebook and paper. Then the facts flew: Name, Miss Charlotte Ann Wheatley. Date, June 28th. Place, Scripps Memorial Hospital at La Jolla. And the weight of the little lady Bill gave as exactly 8.015625 pounds. This, in response to a bewildered look he explained as being 8 and 1/64th of a pound, or (after we proceeded to get the number of ounces in a pound and a pint badly mixed up) just eight pounds and a quarter of an ounce to spare. Everyone doing nicely, thanks. Bill lost three pounds, and it serves him right, springing that six decimal place answer on us! . . . anyway, Congratulations!

TOOL ROOM NOTES

By Speed

Can you imagine Al Ballard spotting Production 15 runs at 2 to 1 odds? Or Bob Passenheim with a blind date?

Challenges are plentiful these days with the tennis players, but here's a new one . . . Art Thursan challenged a friend to some badminton, without a net. Art came in the next day with a patch on his nose, and his partner didn't miss!

Through certain sources we heard Bill Wibbenhorst, Geo. Gerhauser and Art Wullich, had a pool on a recent fishing trip, for the largest catch. Geo. and Art seem to have had the upper hand on Bill, so they had a little side bet. Geo., being extra proud of his catch, picked it up and splash! It slipped from his fingers into the water. He tried to save the day by leaving his clothes behind and diving in! We wondered why he had a cold for a week!

"The most powerful radial, air-cooled, aircraft engines in the world . . ." the Model 31's 2,000 H.P. Wright Duplex-Cyclones.

MT. WHITNEY CLIMB

The Sierra Club, Group San Diego, plans a climb of Mt. Whitney August 19-20. Any mountaineer wishing to join is welcome. See Leaders Russel Kern of Hull, or Henry Mandolf of Engineering.

SOFTBALL SCORE

July 18, 1939

Purchasing	22	vs.	Paint	7
Final Assembly	4	vs.	Hull	5
Production	18	vs.	Toolroom	1
Woodshop	1	vs.	Maintenance	18

STANDINGS

	Won	Lost	Pct.
Hull	5	0	1000
Maintenance	4	1	800
Purchasing	4	1	800
Production	2	3	400
Final Assembly	2	3	400
Tool Room	1	4	200
Wing	1	4	200
Woodshop	0	5	000

PLAY FOR JULY 25th

Woodshop vs. Final Assembly at Horace Mann.
Hull vs. Purchasing at University Heights.
Production vs. Wing at Central.
Maintenance vs. Tool Room at John Adams.
W. C. Gilchrist.

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NAVY RENTAL BUREAU

E. FRIEDRICK

Savoy Theater Bldg., 234 C St.

SAN DIEGO

MAIN 1014

WE COVER THE CITY



Louis A. Johnson, Assistant Secretary of War, was a visitor at the plant on July 18th. Otto Mengen caught Vice-President Edgar N. Gott, Johnson and Major Fleet in this informal view just before Secretary Johnson's departure for the north.

NO JINX!

THE delivery flight of the *Consolidated* Twin Engined Model 28-5 to the British Air Ministry, ran into several 13s, with no ill-effects. In fact the flight from San Diego to Felixstowe, England (incidentally the first flight delivery of a military airplane across the Atlantic) was completed in a very orderly manner with the final hop over the Atlantic taking only 14 hours, 36 minutes. The flight was the 13th over-ocean delivery flight of Model 28s, and the arrival in Felixstowe was consummated on Thursday, July 13th. The average altitude for this flight was 13,000 feet. Had the time of crossing the Atlantic been a bit more rapid (the average speed was 169 m.p.h.), another 13 would have been chalked up in the number of hours for the final leg.

As it was, the flight across the Atlantic was brought about on the 13th thru the decision of the crew to return to San Diego from the first take-off, due to the fact that the gyro-pilot indicated it was not functioning properly when the plane had scarcely arrived over the Salton Sea. Being close to home, the plane was turned about and the checking for the trouble conducted here. On the second take-off the plane soon encountered a head wind of some 30 miles per hour, decreasing her ground speed. Normally such a head wind may be avoided or at least lessened by flying at a different altitude. The nation was in the midst of a hot spell and the headwind encountered at each altitude

tried however appeared to be about the same. With this making a dent in what would normally have been ample fuel for the hop with plenty to spare, the decision was made to descend at Buffalo, after a flight of approx. 2,200 miles. The flight from Buffalo to Botwood, Newfoundland, was then covered easily, and the single non-stop hop from Botwood to Felixstowe across the Atlantic, Ireland and to the far side of England (2,450 statute miles) was covered without incident in excellent flying weather along the great circle course. The cablegrams received from Felixstowe read in part . . . "very nice trip as usual with *Consolidated* equipment." Signed, Rogers.

How contrastingly different and matter of fact this flight appears when compared with the trans-Atlantic crossings of but a few years ago, flights which strained the performance of both craft and their pilots or crew, and which were lucky if they succeeded at all. How different that Mr. Archbold and his crew taking a world-circling journey in their stride, should step across the Atlantic from east to west, nonchalantly drop Mr. Archbold off at New York and proceed to land in San Diego with but a single stop in between, then allow one member of their crew, Stephen Barrinka, to remain in San Diego with the Guba, while Russell Rogers, Lewis Yancey, Gerald Brown and Raymond Booth stepped aboard the *Consolidated* Model 28-5 awaiting them, and headed back across the United States and the Atlantic for England . . . just as simply as that!

SAN DIEGO FLYING CLUB

By H. LaVier

THE airport of the San Diego Flying Club is now the scene of considerable flying activity on week-ends. During the past month many new members have been added to the club roster.

With several new members receiving dual instruction plus lots of solo time by the more advanced pilots, the ever popular "Cub" is as busy as the famed elevators in New York's Empire State Building. Recent first solo flights were made by members, Leu and MacDonald.

Of interest to members and friends was the recent arrival, via stork, of a bouncing (?) baby boy at the Peel home. No doubt the proud father will soon be making a membership reservation.

Club instructor, Harry Culver, is to be congratulated upon receiving his 2S Instructor's Rating. Dual instruction and check flights are keeping Harry up in the air most of the time. Mr. Culver is pinch-hitting for Walter (Mac) McClain.

Saturday, July 15th, The San Diego Flying Club entertained its many friends at Sunnyside Inn, the occasion being a costume dance, children's attire prevailing. The "weaker-sex" were all very attractively costumed, but of special interest was *Consolidated*'s Bob Goodyear, dressed as "Little Lord Fauntleroy"—very cute indeed. President Butterfield was resplendent in a costume also featuring short pants and a small green hat; when last seen the Hon. Mr. Butterfield was engaged in considerable "hangar flying" from a safe height atop the bar.

Among those recently elected to membership are: Adams, Bruce Craig, Hayes and LaVier, all of the *Consolidated* Engineering Department.

It's good to see so many of our old friends back in the Hull Dept. Two of the boys who came back are just freshly married. They are Cliff Lessing and Vic Mainhart. Vic says he went back to Buffalo and came back with a nice car and wife, and he sure likes the car.

It is much quieter without "Yap, Yap," Hopman around, isn't it?

Slack Suits
Polo Shirts
Sweaters

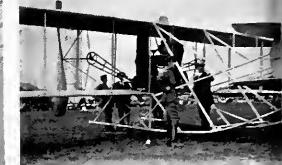
Shirts, Ties
Hosiery
Underwear

National Shirt Shops

OF SAN DIEGO

"America's Leading Men's Furnishers"

519 BROADWAY



AIR BIRTHDAY . . .

AUGUST 2d, 1939, is a significant date in the history of United States Aviation, for it marks the birth of the Army Air Corps. It becomes particularly significant to the aviation manufacturing industry, for contracts with the Army have subsequently done much to advance the art of flying. As a matter of fact it was Army airplane work that started *Consolidated* on its career and gave to us many of our topside executives.

Just an even 30 years ago, on August 2d, a recommendation was made by the Board of Officers that the purchase of an airplane be made, and on the same date the Chief Signal Officer of the Army approved the recommendation. Thus August 2d has become the date considered as the birth of the Army Air Corps.

The War Department had advertised for bids for the construction of an airplane and the Wright Brothers proved they were then the only persons capable of producing an airplane. Their product was delivered at Fort Myer, Va., on August 28, 1908. It was a biplane with a wing-spread of about 40 feet and a wing area of some 500 square feet, weighing approximately 800 lbs. The lateral control of the plane was effected by warping the wings. The double elevators and the rudder

Left, Top: U. S. Army's First Airplane, Wright Type B, Fort Sam Houston, Texas, 1910. *Lieut. Benj. D. Foulois*, pilot (second from right). *Left, center:* The Army's first airplane, Wright Type B. Accepted at Ft. Myer, Va., 1909, now in Smithsonian Institute, Washington. D. C. Launched from mono-rail by means of 1400 pound weight dropped from tower in rear. Landed on skids. Did not have wheels. Lieut. Frank P. Lahm and Lieut. Benj. D. Foulois, the Army's first pilots received instruction on this airplane. *Lower, left:* Airplane with wireless outfit, Ft. Riley, Kansas, Nov. 2, 1912. On the left is Lieut. Follett Bradley, and on the right Lieut. Henry H. Arnold now heading the entire Corps.

Center, Top: Capt. C. DeF. Chandler with Lewis Machine Gun in airplane with Lieut. Roy T. Kirkland, at College Park, Md., June 7-8, 1912. This is the first time a machine gun was ever carried by airplane. *Center, bottom:* Phil O. Parmalee and Lieut. M. S. Crissy in Wright Machine with firs explosive to be dropped from an airplane—San Francisco, Calif., Jan., 1911.

Right, Top: Major Gen. H. H. Arnold, the present dynamic Chief of Air Corps. *Lower right, left to right:* Lieut. B. D. Foulois, Wilber Wright, Lieut. Frank P. Lahm and Orville Wright with Wright Airplane at Ft. Myer, Va. July 27, 1909.—Official Photos, U. S. Army Air Corps.

were supported in front of the wings by an outrigger arrangement. The landing gear consisted of two runners, or skids, and the plane was launched from a monorail.

The power plant of this first airplane, also designed by the Wrights, was a 4-cylinder, water-cooled engine, producing 25 horsepower at 1400 revolutions per minute and driving two 8½-foot wooden propellers by means of gears and chains. The propeller speed was about 400 revolutions per minute.

The requirement that the airplane attain a speed of 36 miles per hour was exceeded by about 5 miles per hour. Other specifications, namely, that it should be able to remain in the air for an hour with two occupants and that it should have a range of over 125 miles, were also satisfied. An-

other requirement specifying that the plane should lend itself to transportation in an Army wagon—now considered a rather unique provision—was also fulfilled. The Wrights received \$25,000 for their airplane, plus a bonus of \$5,000 for its having exceeded the required performance.

On March 3, 1911, Congress for the first time specifically appropriated money for aviation—\$125,000. By September 30, 1913, Army aviation had grown to 17 airplanes, with a personnel of 23 officers and 91 enlisted men.

The Aviation Section, Signal Corps, of the Army was created on July 18, 1914, with 60 officers and 260 enlisted men authorized, and on September 1st of that year the 1st Aero Squadron, comprising 16 officers, 77 enlisted men and 8 airplanes, was organized at San Diego, Calif.

Three years later at this station located on North Island, the Army Air Corps commissioned one of its members a Junior Military Aviator. He was just thirty at the time and destined to play a large part in Army Air Corps affairs, for he was Reuben Hollis Fleet, now President and Manager of *Consolidated Aircraft*. After winning his rating of Junior Military Aviator he became officer in charge of flying at Sacramento's Mather Field; executive officer in charge of training in the office of the Chief of the Air Corps; officer in charge of the airmail when it was inaugurated in May, 1918, between Washington and New York; contracting officer for the Air Corps and business manager of McCook Field from January, 1919, to November, 1922. He then resigned, became Vice-President and General Manager of the Gallaudet Corporation, and in May of 1923, organized *Consolidated Aircraft Corporation*.

The date of August 2d, 1909, was also the beginning of events that would give many of our present executives early aviation training and experience: Vice-President and Chief Engineer I. M. Laddon joined the Engineering Division of the Air Service at McCook Field. He played a considerable part in the development for the Army in all-metal construction, and resigned the Army to join *Consolidated* in 1927. Mr. C. A. VanDusen, our Vice-President and General Manager, had experience building airplanes for the Air Corps from the date of 1914, his original experience in this field having been with the Glenn L. Martin up until he joined with *Consolidated* in 1934. Harry A. Sutton, Assistant Chief Engineer, received his early flight training just across our bay at what was then Rockwell Field, the Army Air Base, became an Aero Engineer, Material Division, U. S. Air Corps in 1923, was a winner of the Distinguished Flying Cross and the MacKay trophy thru his investigation of Spinning Characteristics conducted for the Army Air Corps. Bernard W. Sheahan, Engineer in charge of Drafting and Personnel, began airplane design work with the U. S. Signal Corps of Washington, D. C., in 1917. In 1920 he became Assistant Engineer in charge of Design, Branch No. 3, McCook Field, Dayton, Ohio. Becoming a project engineer in 1925 in the Chief Engineer's office. He joined *Consolidated* in 1927. Roy A. Miller, Chief of Structures of the Engineering Department began with two years in the Army Air Service ground school, with some flight training, concluding with inspection duty for one year, rank of First Lieutenant. He spent five years at McCook

Field in the structures group, and joined *Consolidated* as a stress analysis engineer in June '26. Jim Kelley, Factory Superintendent, held an inspection capacity in the U. S. Army in 1917, and remained in the service thru 1929 when he left to join with *Consolidated*. Edgar N. Gott, Vice-President, as General Manager and later President of Boeing Aircraft, had considerable experience with Army Air work including construction of the first armored multi-engined airplane, and the execution of what was at the time the largest peace time order for aircraft ever let (for 200 MB-3As). Subsequently as President of Keystone, he was instrumental in the construction of approximately 200 Air Corps Bombers. He holds a commission as major in the Specialist Reserve. "Bill" Wheatley, Chief Test Pilot, graduated from the Air Service Primary and Advanced Flying Schools, Brooks and Kelly Fields, Texas. Vice-President H. E. Wehmiller attended the Air Corps Primary Flying School, Brooks Field, Texas; became a Junior Aero Eng. Research and Wind Tunnel, McCook Field; Asst. Aero Eng. Airplane Branch, McCook Field. "Jack" Thompson joined the U. S. Signal Corps (later the Bureau of Aircraft Production) in 1917 and remained there to 1920, etc.

The list of those of *Consolidated* who have participated directly or indirectly in Air Corps work, which started 30 years ago with the purchase of a single airplane, would probably be found to include a large percentage of the entire organization. It appears that *Consolidated* is particularly well qualified to serve the Air Corps by virtue of having an abundance of talent possessing a thorough understanding of Air Corps needs. Therefore August 2d, 1939, birthday of the Army Air Corps has a particular significance for *Consolidated*.



When the English describe alighting after an airplane ride they call it "de-planing."



Last Minute News!

No word has been heard of Al Nelson's two cases of beer that have been lost.



Emergencies have always been necessary to progress. It was darkness which produced the lamp. It was fog that produced the compass. It was hunger that drove us to exploration; and it took a depression to teach us the real value of a job.

Men do less than they ought unless they do all that they can.



Our very active Factory Manager, James L. Kelley, relaxing in piscatorial comfort.

HULLabaloo

By Al Leonard

AL "Land-owner" Clark has been heard bragging about his new "Heaven On Earth Utopia" way back in the mountains. With very little questioning he will tell you, "how wonderful it is to get away from it all." He says it sure is swell to wake up in the morning and be surrounded by Nature's beautiful works of art. Eye witnesses say that the only things that awaken him in the morning and surrounds him is a mess of rattlesnakes. We first thought he was going to fence in his "paradise" and use it as a peephole exhibit a la Sally Rand, but we gave up that idea because no one would go way out there to see Mr. Clark broiling in the sun, even if there were no fence.

Bob "Archbold" Hayman is organizing a South Sea Sand Shark Fishing Expedition to supply Sand Shark Steaks to the English who are fed up with eating nothing but bloaters and herring. Bob found out recently that Sand Shark is a rare treat to the English and an Englishman likes nothing better than a nice shark steak with his tea and crumpets. Bob is having a plane built for his expedition. Rod and Reel Club members take notice.

Why can't Nick Tuevsky the Vulgar Boatman and Barber's Nightmare, talk to anyone without breaking into Beethoven's Unfinished Rhapsody or the Anvil Chorus from the Blacksmith's Serenade? If you so much as say good morning to Nick you have to listen to the complete works of Strauss and Schubert. You haven't a chance!

Save on New Model Kodaks

Now's the time—here's the place—to choose a new Kodak. Kodak prices are down—and we carry a big stock.

Eastman Kodak Stores, Inc.

419 BROADWAY

NEWS ON THE WING

STARTING the work of going over the "Guba" which with such apparent ease carried Mr. Archbold's crew around the world, Jack Kline came upon a copy of a newspaper tucked away back in the ship. The good ship Guba had carried news about her arrival in Africa, all the way from Mombasa, Kenya, on the African east coast. The "Mombasa Times", a newspaper of tabloid size and some 12 pages, was dated June 22d and carried several items about the Guba and the flight, with particular emphasis upon the route between Australia and Africa. Aboard on this portion of the Guba's round the world flight, were of course, Captain P. G. Taylor in charge of the survey for the British and Australian Governments and Mr. J. Percival, second representative of the Australian Government and official newspaper correspondent, in addition to the regular crew of Mr. Archbold, Capt. L. A. Yancey, navigator; R. Rogers, pilot; R. Booth, radio operator; S. Barrinka and G. Brown, engineers.

Quoting in part from the leading article we have:

"GUBA" IN MOMBASA: OCEAN ROUTE SATISFACTORY

"When the flying boat Guba alighted at Kilindini Harbour at 09.40 hrs. G.M.T. yesterday Captain P. G. Taylor completed his survey of the Indian Ocean Air Route from the west coast of Australia to Mombasa, by way of the Cocos Islands, Diego Garcia and the Seychelles, for the British and Australian Governments.

"The route has been known in Great Britain and Australia for a number of years as 'The Reserve Empire Air Mail Line.'

C. J. Hendry Co.

SHIP CHANDLERY
AND MARINE
HARDWARE

■
Fishing and Boat Supplies

■
930 STATE STREET
One block south of Broadway

Phone F. 7397

RETURN OF GUBA

Date	From	To	Time	Statute Miles	Persons Aboard
			Hrs. Min.		
5-12-39	Hollandia	Port Moresby	5 37	650	8
5-13	Port Moresby	Townsville	4 41	710	8
5-14	Townsville	Sidney	7 22	1,120	5
6-3	Sidney	Port Hedland	19 44	2,320	8
6-4	Port Hedland	Batavia (via Cocos)	21 52	2,340	8
6-7	Batavia	Cocos Island	8 28	840	8
6-13	Cocos	Diego Garcia	14 31	1,670	8
6-16	Diego Garcia	Seychelles	8 15	1,180	8
6-21	Seychelles	Mombasa	7 46	1,090	8
6-22	Mombasa	Kisumu	2 55	450	6
6-24	Kisumu	Coquithatville	8 27	1,120	6
6-25	Coquithatville	Lagos	7 51	1,130	6
6-28	Lagos	Dakar	9 37	1,610	6
6-30	Dakar	St. Thomas	19 33	3,250	6
7-1	St. Thomas	New York	11 9	1,750	6
7-5	New York	New Orleans	10 18	1,300	5
7-6	New Orleans	San Diego	9 39	1,550	5

24,080

. . . etc." The last remaining ocean in the world had been crossed by airplane.

Commenting upon the result of this flight Capt. Taylor was quoted as saying: "The Indian Ocean air route is practical. It will be a valuable acquisition to the Empire in the future. All the island bases fulfilled my expectations, and there is no reason why an air service should not be immediately started over this route. The island bases are beautiful and should appeal immensely to air travelers. I am fully satisfied with the results of the flight."

Thus was the crossing by air of the Indian Ocean for the first time, recorded in distant Mombasa, and delivered in San Diego in record time.

WING KEYHOLE

By Browne

AT a recent San Clemente dance, Mr. Ralph Wade was seen truckin' about the floor with none other than Miss Judy Garland, petite movie actress . . . better watch your man, Mrs. Wade!

We notice several old faces back in the Wing Dept. Welcome home boys, happy to see you back.

We were sorry to learn about Danny Jones' recent auto accident. Danny received several broken ribs, a fractured arm and a severe case of poison ivy. We wish you a speedy recovery and hope to see you back soon Dan.

The Wing tennis team is well on the way to the top. Plunkett has already reached 9th place. Derby, Adams, Elo, Williams and Miller are close follower-uppers.

Barny Oldfield has nothing on Henry Hatch. Have you noticed Henry, mornings on his way to work in that speedy, dural

clad, roaring, monstrous, 1929 vintage Lincoln, race car and truck combined? Henry's friends have to hold out a checkered flag in the mornings to get the thing stopped for the parking lot.

We see Frank Boone of Inspection has returned from his vacation, looking fat and happy, ready for a big year's work.

Everyone has an idea about how to build a house for convenience. Slim Franklin has a new idea that will revolutionize.

Slim wants a mirror set just high enough at the foot of his bath tub so he can see to shave while he is relaxing in a nice warm bath. He wants a little shelf nearby with all his shaving equipment on it. Then he can dip his shaving brush in the water, lather his face and shave. After the shave he will turn on the shower directly overhead for the rinse. This, he believes, will save him much unnecessary walking and many unnecessary movements.

While visiting with our sick friend of Maintenance, Mr. Jack Wesp, who by the way is looking very well, and beginning to walk around a bit, I was informed (while Jack was out of the room) by Mrs. Wesp, that our friend had on that day attended the Ladies Aid Society meeting. What has the doctor done to good old Jack?

Al Fink.

Soaring has progressed to such an extent that the records now stand at an altitude of more than 28,000 feet, airline distance in excess of 400 miles, and for a duration of as long as 50 hours of continuous flight.

The Transatlantic

AMERICAN Export Airline's *Consolidated* model 28 airplane was fittingly christened the 'Transatlantic' on June 20, before a crowd of above 5,000 persons, in New York, and the ceremonies were broadcast over a N.B.C. coast-to-coast hookup. Mrs. Anne Towers, wife of Rear Admiral John H. Towers, Chief of the Navy Bureau of Aeronautics, broke the bottle of champagne. The event fittingly took place on the twentieth anniversary of the first flight across the Atlantic in 1919 by Admiral Towers and the crew of the Navy's NC-4.

A comparison of the "Transatlantic" and the NC-4 will give a good indication of the progress that has taken place in aviation during the twenty years. The first crossing and return of the Transatlantic was completed on July 9th, after a flight of 22 hours and 50 minutes from Horta the Azores, to Floyd Bennett Field.



Item

Engines	
Horsepower (Total)	2 P & W Twin Row Wasp
Gross Weight (full load).....	2100 (Take-off)
Lbs./H.P.	28,500 (1750 gals.)
Weight Empty (lbs.).....	13.5
Useful Load (lbs.)	14,819
Wing Area (sq. ft.)	13,681
Wing Loading (lbs./sq. ft.).....	1400
% U.L./W.E.	20.4
% U.L./G.W.	92.5
Oil (lbs.)	48
Fuel (lbs.)	750
Range (miles)	10,500
Full Speed'	4,000 (statute)
Hull Weight	200
Wing Weight	3,069

Model 28

NC	
4 Liberty	
1600	28,000 lbs.
17.5	
15,874	
12,126	
2380	
11.7	
76.39	
43.31	
750	
9,650	
1,400 (Probably nautical miles (=1,610 statute miles))	
100 (?)	
2,800	
1.2 lbs./sq.ft.	

During the last five years, more than 30% of the Aircraft Industry's business was export.



Persistence and determination alone are omnipotent. The slogan, "Press on" has solved and always will solve the problem of the human race.

If she's cute but "stand-offish"
send her flowers from

EXCLUSIVE
Florists
SIXTH and B STREETS
FRANKLIN - 5233

Jim Morris tells this one: "Three members of the American Legion were attending a convention. Arriving in town rather late they found that all the hotel rooms were taken, except a bridal suite. The price, they found, would be \$30. So they chipped in \$10 each. After a while the hotel clerk discovered he had overcharged the men and that the price for the rooms was only \$25. He gave the negro porter five silver dollars to take upstairs. Realizing that the five dollars could not be split evenly, the Legionnaires kept three and gave two to the porter.

Now, this meant that they had each paid only \$9. Three times \$9 is \$27. The porter they gave \$2. \$27 and \$2 is only \$29. What happened to the extra dollar?

PUTTER

In the recent Putting Contest for *Consolidators* staged at Harry Jacob's Driving Fairway Bernie Sheahan rounded out the 36 holes with a score of 64 to take first place. Roy Miller and Tommy Hemphill were runners up, each with 66.

LINDBERGH FIELD CAFE

Administration Building
Lindbergh Field

▼
"The Home of Aviation"
BREAKFAST SERVED AT 6:15 A.M.



FINISH, FINISHES AND

FINISHING an airplane is no small task. Neither is it a simple one. Today's aircraft are put to tests that would cause the average conveyance to deteriorate in fast order. A flying boat may spend a good part of its time in the air, but it also spends a lot of time in or near water which in most cases is salty.

Very seldom is a modern flying boat's useful life shortened due to corrosion. The reason an airplane can resist this corrosive action is due to the careful application of protective coatings.

These protective coatings begin with a surface treatment of the material itself. In the case of steel or brass details, cadmium plating is applied, while all Aluminum Alloy details are given the Anodic Treatment. Following this surface treatment a Zinc Chromate Primer is applied, the number of coats depending on the service the detail is to perform. Final finish coats of several different materials are used ranging from Aluminum Lacquers to the Bitumastic Compounds applied to the hull bottom and sides up to the water line.

All these above operations are topped off by the final trim. These trimmings include identification markings, squadron insignias and general information concerning the inspection openings and overhaul procedure.

Consolidated's Paint Shop is big. The first impression one gets upon entering thru the large fireproof doors is much the same as one gets when entering a large circus tent, for when one looks around he is amazed at the size of the room with its clean white walls and ceilings. Its constant temperature of 75 degrees is also noticed and appreciated. This temperature

is controlled at all times and guarantees uniformity of finish operations.

Overseeing this important department is Benny Leonard whose aircraft career began in the early days of the war. Benny, whom Delaware-Ohio school teachers always called Jesse, left the home town and joined the Army Air Corps. Things happened fast in those days, and Benny soon became a member of the 50th Aero squadron and shipped off to Harlaxton Airdrome where the squadron was attached to a regular Royal Air Force division. Later on he was stationed at Spittlegate Airdrome. It was necessary to do a lot of driving around in those days, and the public authorities saw to it that Benny was properly examined for a driver's license. He still has it with him. After the war with its excitement and thrills, Benny found himself home and in need of a job. Jobs were then few for the many boys who needed them. He turned his eyes toward Cleveland and the new Air Mail line that had been opened between New York and Chicago. He applied for a job and got it at the Cleveland Air Mail Field that was near the old Glenn L. Martin factory.

The writer worked with Benny at that old field, and never could anyone forget those early efforts to keep the service going. This was only a little more than a year after the original flights between New York and Washington where made under the supervision of our own Major R. H. Fleet.

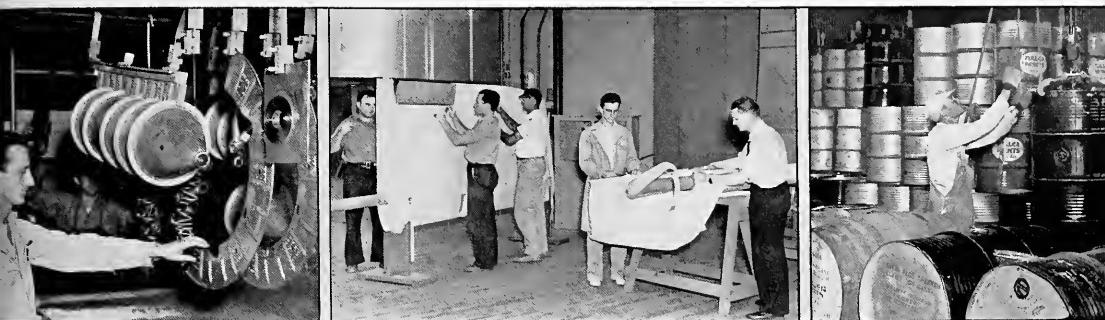
The ships used were DH-4s equiped with 400-horsepower Liberty engines. Keeping these bulky machines in shape to do the 500-mile runs that were interrupted in many cases by trouble that ranged all the

way from faulty equipment to just plain lost aviators, was no small job. Landing in farmers' backyards or in city streets as one pilot did, wasn't always easy on the wooden frames and landing gears. And even a so-called normal landing on rough surface of the assigned airports usually necessitated some repair, and if you've never wrapped shock cord around an axle and up and over and around the landing gear strut . . . you've just not lived at all.

Those were the days before the specialist came into vogue and a person working around a plane just had to be able to do everything. The mechanic who serviced the engine in the morning, probably was recovering a rudder in the afternoon, and the man who changed a prop. one day, was painting the top of the hangar the next.

Benny soon found the way into the nearby Martin Company's plant, and started doing finishing work. At that time Mr. C. A. Van Dusen and Mr. Larry Bell were with the Martin company, and the twin-engined bombers being turned out were the class ship of their day. He moved to Baltimore when the company changed locations, and then back to Great Lakes in charge of finishing both their commercial and military products. In 1934 he moved to Buffalo, and has been with *Consolidated* since that time.

Ross Dilling, in the capacity of Ass't Foreman in the paint shop wears a ten-year *Consolidated* service pin, but his finishing days are many more in number. His biggest job being with the old Locomobile Company when 18 or 20 coats of finish on a car was thought to be about the minimum that could be applied, and



FINISHERS

... By Larry Boeing

all this by hand-brushing of course. His cool efficient handling of his duties is coupled with an observant sense of detail.

Orville Hubbard handles all the identification markings including the manufacture of our own decalcomanias, which are produced by the silk screen process. This includes lettering, plumbing identifications and the painting of any signs as required. He is ably assisted by Frank Finn who also acts as lead man for doping operations.

Bert Naseef is in charge of all the important Anodic processing. His interest in his work and all things of an aeronautical nature, coupled with his knowledge of the operations he controls, show up in the work his group turns out. Bert hails from Buffalo and besides holding a transport pilot's license, practices a hobby that brings him much pleasure. His idea of a pleasant afternoon is shooting aerial views of interest about the county that are in demand. He has taught several hundred people to fly and attain their licenses.

Bert has Eddie Banks assisting him, and together they keep things in fine shape. Clare Baldwin has charge of any anodic work done in the night shift. Thad Barthel has charge of touch up prior to inspection. He also is a Buffalo boy.

Sharing responsibility in the covering department are Bob Bibbs who directs the fabrication of all upholstered items and Tommy Gascoyne who oversees the operations connected with applying the cotton fabric covering of all surfaces. Bob is a Colorado Springs boy and knows every trout stream on the eastern slope of the

Rockies. Tom is also from Buffalo, having been with *Consolidated* since 1934.

George Alexander acts as lead man on all finishing of detail parts. Al Griffith and Casey Jones oversee all final touch up operations on their respective day and night shifts.

Doing a very necessary and important job in the Finishing Department is Geo. Smith, who is in charge of all equipment. His duties not only include the controlling of this equipment, but also the servicing of spray guns and many other items. In his "spare moments" he assists with the application of the Hot Raw oil to the interiors of sealed tubes or assemblies.

The paint storage and mixing room is under the supervision of Roy Rudeen. With seldom less than 200 drums of material in stock at one time, Roy has a job that requires careful attention. He has the latest of overhead handling equipment and electric mixers to work with.

Consolidated Philosophy

By D. R. K.

Personality is the sum total of all the blessings bestowed on man.

Happiness is found in seeking another's good.

An Education is the retention of the review of your own and other people's thoughts and experiences. The limit of education is the limit of review and retention.

The best way to strengthen one's judgment is to exercise it.

Nothing in the world can take the place

1. Ross Dilling, assistant paint shop foreman, observes Arthur Putnam applying aluminum lacquer on extruded sections with spray gun. The vanes in the background are part of the spray booth suction outlet which draws away excess paint. The breathing mask excludes the possibility of paint dust entering the wearer's lungs.

2. Tommy Butterfield and Benny Leonard check a finished dope job with a Tautness meter. This checks the close uniformity of finished work being turned out, contrasts markedly with the older "thumping" or "feel" as a means of determining dope action on the fabric surfaces.

3. Frank Finn is here checking the operation of a zipped inspection door, while Orville Hubbard applies one of the decalcomania transfers. Instructions and precautions for field service operations can be applied in a minimum of time with these transfers.

4. Thad Barthel directing a load of parts into the anodic tank for processing. Eddie Banks is operating the controls for the overhead hoist.

5. Casey Jones, Glen Bovee and Fritz Von Meeden applying the covering to a control surface. Tommy Gascoyne and Bob Bibbs are fitting a cover over a control structure previous to the sewing operation.

6. Roy Rudeen operating overhead handling equipment in the paint storage house. Here several hundred drums of material can be conveniently stored and easily handled.

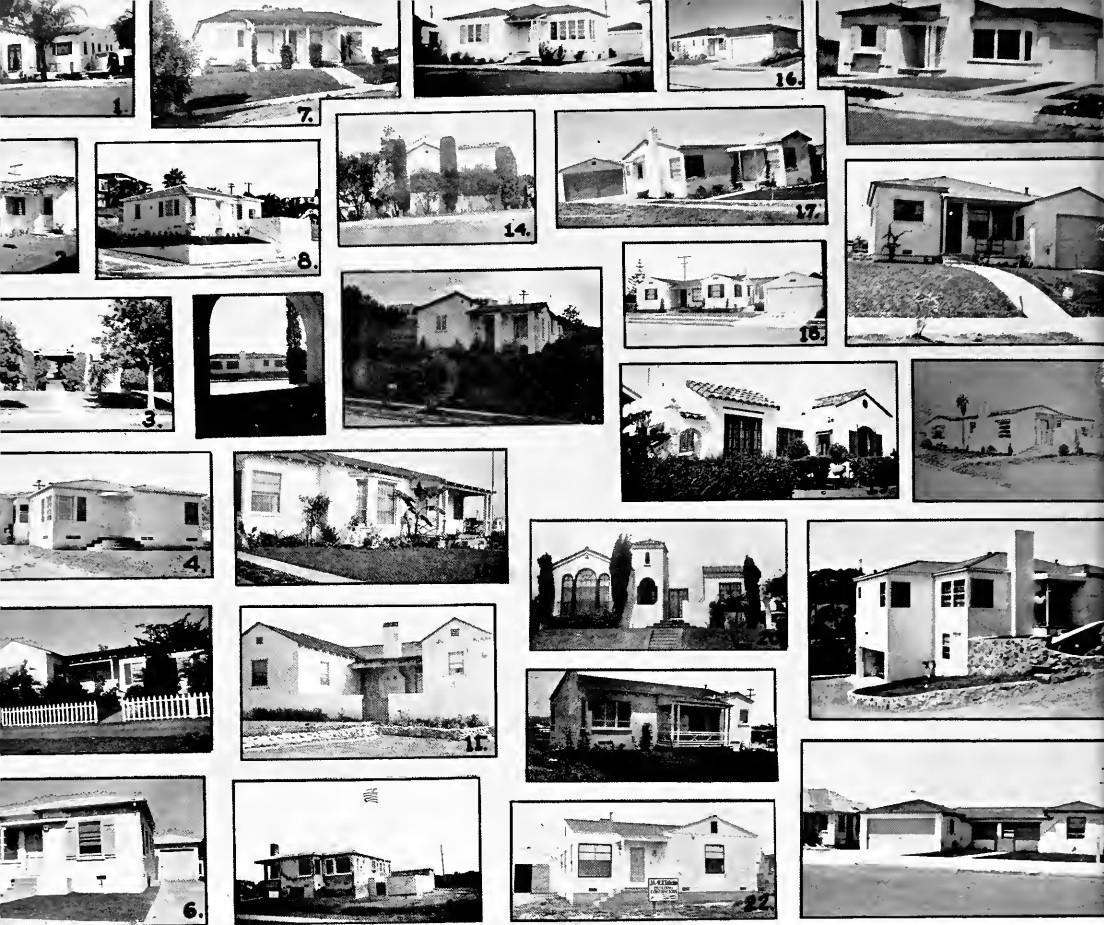
You've met the boys and their boss and we've tried to tell you a little about them and about what their duties are. We would like to tell you more about all the men in the Finishing Department, but just look at any *Consolidated* airplane and let the finish tell the tale. Finish.

of persistence. Talent will not; nothing is more common than unsuccessful men with talent. Genius will not; unrewarded genius is almost a proverb. Education will not; the world is full of educated derelicts.

It's a good thing to have money and the things that money can buy, but it's good, too, to check up once in a while and make sure you haven't lost the things that money can't buy.

Avoid flatterers for they are thieves in disguise.

Flattery corrupts both the receiver and the giver.



HOME BUILDING . . .

BECAUSE it was found that some three persons in one department were building their own homes and kidding each other a good deal about it, the suggestion was made that pictures of these homes be run in the *Consolidator*. Believing that there might be a few others also constructing homes, a bulletin was posted asking for snapshots of all homes either built or purchased within the last two years. The response was amazing. Above are snapshots of some 25 such homes, all received on very short notice. Many were unable to secure pictures in time, and hence could not make this issue. Some of the above homes have not yet been moved into; some have been occupied within only the last month. Many of the owners are doing their own landscaping. There's one thing they all have in common and that's a tremendous enthusiasm for their new

homes! There are quite a number who are building at the present time. *Consolidators* are certainly "going to town" in the building of San Diego! Those who were unable to submit photos of their new homes in time for this issue should turn them in as early as possible for the next issue. The list of owners of the homes pictured above are listed below. They have every reason to be proud of their investment.

1. Engineer Ted Hall submitted this snapshot of the home he built.

2 and 9. Views of the home of Mr. and Mrs. Edward Robinson.

3. This has been the home of Mr. Walter L. Bubel and family since June 18, 1939.

4. Home of Mr. and Mrs. Earl F. Merlau and family. Was completed March 18th of this year. Two bedrooms, living room, kitchen, dinette and bath with a patio in the rear. Note on back reads, "Everyone welcome."

5. Home of L. A. Baliss, Engineering Dept. Picket fence sets off the front yard nicely.

6. Home purchased during completion . . . the

home of Alfred Stieringer, formerly of Heat Treat, now Maintenance No. 921.

8. Another view of Whitaker's home from the front.

8. Chris Englehardt is justly proud of the home he built. He did his own landscaping and points out the patio on top of the two-car garage.

10. "Home Sweet Home," the note read, "Built for Mr. and Mrs. L. W. Wiker, No. 1790."

11. Home of Stanley D. Whitaker, which was purchased furnished. A rear view.

12. Tube Bender Bert Freakley's nearly completed home. Bert writes, "Open for public inspection July 30th to August 6th. Will be at home to *Consolidated* friends and others after Sept. 1st, at which time a new 'Cocktail Bar' will be tried out for their approval."

13. Earl Wesp's home which he recently purchased.

14. Home purchased by H. W. Roese of Hulls. Two bedrooms, living, dining, bath, kitchen, breakfast nook, service porch. Tile kitchen and bath, 2 1/2-car garage . . . hardwood throughout.

15. Home of M. J. Wells of Engineering.

16. Kenneth MacLeod No. 1033, built this home and did his own landscaping.

17. E. F. Butzin of the Loft, purchased his home built.

18. Ben McMicken, No. 5104, purchased this home new in May, '38. Did his own landscaping.
 19. Harvey L. Muck recently purchased this home already built.
 20. The purchased home of J. W. Thatcher of the Tool Room.

21. Home of H. M. Prior of the Tool Room. No. 1249. The home was built for Prior and was completed April 1st. Prior, incidentally was the first person to submit a home photo.

22. Home of Geo. E. Leonard, No. 8013. Five room frame, stucco. Would be glad to show to anyone interested.

23. Home of Milton Hangen of tool design. This home also was completed within the last two months.

24. Charles Wills of tool design had this home completed within the last two months.

25. Home of Frank W. Fink built Aug.-Sept. 1938. Frank has a novel record of his home construction which he claims shows everything from the ground-breaking to, but not including, the moving van. It is a 200-foot, 8mm color movie which he will be glad to loan out.

26. The "Country Rancho" of C. L. R. Smeltzer in La Mesa. Landscaping is in progress.

27. Robert Biddle, wood shop, completed his home within the last two months.



WOOD SHOP CHIPS

By J. E. Hodgson

FRED HARGER of the Model room has just finished the building of his new home. He promises to have a photo of it for the next issue.

"You ought to see him," "Who?" "Why, Walt Gray in his new red Studebaker . . . he's the envy of all the fire chiefs in sight!"

Ralph Berg purchased an avocado ranch out La Mesa way. He and his family are living the simple life, while arranging for a home to be built there.

Harol Hanson our genial little Dane, was raising chickens, 'till he found out they did not raise so good. "S-o-o-o," he let them fertilize the land, then killed them. He then moved the chicken coop to a new spot and made a summer house of it. He now has a flower garden on the original site. "Utility, I calls it!"

Jack Benkner announces the birth of another daughter, Dorothy Carlyn, June 24th and everybody's fine. Keep on, Jack, then Eddie Cantor won't have anything on you!

Campbell Murry and yours truly are kind of burned up, after a big week-end "Lawn Bowling." The occasion being the Annual Tournament of the San Diego Lawn Bowling Club. There were visiting teams here from Arroyo Seco, Exposition Park, Highland Park, of Los Angeles, Pasadena, Long Beach, Laguna Beach and Redlands. The ladies supplied a luncheon, and everyone had a good time . . . but it was hot.



Into every intelligence there is a door which is never closed, thru which the creator passes.

TENNIS TOURNEY

By Matt Wielopolski

SPECTACULAR playing, keen competition and clean sportsmanship were prevalent throughout the 3rd annual *Consolidated* Tennis Tournament, held during the month of June.

Among the unexpected events which upset the tennis committee's predictions were Withers' default to Abels, Lockwood's defeat by Kilgore, McGown's trouncing of O'Connor, and Hoover's withdrawal from the tournament. These were but a few surprising plays which blew the tennis committee's prophecies into the four winds. Which goes to show us, not to count our chickens before they are hatched.

At the end of four rounds (64 tennis matches) of tennis eliminations, Lyko and McGown found themselves the lone survivors for the final event. These two boys proved themselves to be the best of the 64 entrants even after their match which won, for the winner, the beautiful W. Folsom-*Consolidated* Tennis Trophy and Championship for 1939.

"Lightnin'" Loyko, a dark horse, proved to all, his tennis technique over "Lefty" McGown on July 1st. Things began to happen from the very first game. After some marvelous shot displays, Loyko emerged on top with the first set 6-3. The second set found both boys dueling with "an eye for an eye and tooth for tooth" spirit. At the end of this play McGown outlasted Loyko with a 7-5 score. The third set proved that the boys tightened their belts another notch, both playing cautiously, yet showing superiority in every hit ball.

Fast and slow; back and forth; high and low; cut and chop; from left to right and back again went the tennis balls. Neither one making an error, proving that each one earned his point deservedly, with uncanny and unexpected tennis shots. At the end of fifty minutes, McGown hit

a fast low backhand shot at Loyko, but it was just too wide. And so Loyko won the third and deciding set at 6-4 to clinch the match and championship. However, McGown proved to be "the hard man to beat."

Last but not least (we hope) the tennis committee: Bill Gilchrist, Ed Kellogg, John Lockwood and Yours Truly, thank you all for your kind cooperation in this tournament. And now for the Consair Tennis team and the tennis ladder.

TENNIS LADDER

The *Consolidated* Tennis Ladder, which went into play the latter part of June with approximately 65 players, has seen over 40 matches played as of July 17th. Top places held at present in their order: 1 Loyko, 2 Hudson, 3 Carter, 4 Abels, 5 McGown, 6 Kilgore, 7 Phillips, 8 Lockwood, 9 Plunkett, 10 Vernon, 11 Wielopolski, 12 Brady, 13 Withersall, 14 O'Connor, 15 Oehser, 16 Moffatt, 17, Pownder, 18 Davidson, 19 Basore, 20 Miller.

The Tennis Committee, composed of Gilchrist, Lockwood, Wielopolski and Vernon, report more enthusiasm being shown as the ladder progresses with the periodic gallop and shaking of the ladder by the "dark horses," in their run to the top.

Many of the players are showing marked improvement with the variety and competition afforded in a ladder tournament.

Watch the challenge board sheet on the South gate bulletin board for challenges.

Al Vernon.

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FLYING BOAT FLOODING TESTS

By E. G. Stout, Engr. Dept.

(Several months ago a number of men in the shop were mystified when they saw Ernie Stout of the Engineering Department apparently enjoying the pastime of sailing a queer looking boat in the Tank Dept. testing tanks. All was not play, however, for the boat and apparatus represented one more of the many hydrodynamic tests necessary to design the model 31 hull. Ernie was approached to give a bit of the low down and here it is:)

IT is commonly known that large ships of the Merchant Marine and Navy are carefully designed for what is known as "Watertight Integrity," which simply means that by an elaborate system of watertight bulkheads and doors, flooding, due to damage to the hull below the water-line, can be confined to local areas. It is less commonly known that such provision must also be made in a flying boat hull. It is customary to divide the hull into sufficient compartments so that any two may be flooded without capsizing the airplane.

In large flying boats the hull is usually divided into at least four such watertight compartments, and often as many as seven

or eight are provided. In order to determine the height of the bulkheads and design the doors which allow passage thru the bulkheads, it is necessary to know the loaded water line heights, trim, and center of buoyancy location when various compartments and combinations of compartments are flooded.

In the past it has been customary to follow the practice used in ship-building where the various conditions of flooding are computed by using Bon Jean's curves of displacement. This is a long and tiresome method of trial and error involving an arbitrary selection of water line for each condition of flooding, followed by a graphical integration of the volume of the hull and moment of the volume below the assumed water line. As the correct displacement must be obtained when the center of buoyancy lies directly below the center of gravity on a line perpendicular to the water line, the difficulty of the method is apparent.

The allowable full scale error is usually of the order of plus or minus 200 pounds displacement and plus or minus 2 inches in location of the center of buoyancy. As both trim and draft may affect either the displacement or position of the center of buoyancy, a great number of assumed water lines must be tried before the specified conditions are met.

This procedure must be followed for each condition of flooding, load, and center of gravity location. For a boat hull with seven or eight compartments, investigated for at least fourteen or fifteen combinations of flooding in addition to the normal unflooded conditions, the computations become extremely long and involved. As the model 31 hull is divided into eight watertight compartments, it became desirable to develop an accurate, rapid method of determining the flooded water-lines experimentally.

This was done by extending the method used by the N.A.C.A. Tank for determining the normal unflooded water lines experimentally from a tank model of the hull. The procedure consists of statically balancing the tank model about the horizontal and vertical center of gravity location and counterweighting the model to the scale gross weight of the airplane. The balanced, counterweighted model is lowered into the trimming tank where it assumes the same attitude as the full scale airplane would under the same conditions of loading and center of gravity location. The draft and trim is then measured experimentally on the model. The N.A.C.A. has found the accuracy of this method to compare favorably with computed results.

In order to extend this experimental method to cover flooded conditions, a special displacement model of the Model 31 hull was built. This model is shown in the illustrations, and is an accurate scale reproduction of the airplane hull. The model is cut transversely at each watertight bulkhead location. The segments are attached to a dural channel backbone so that any watertight compartment or combination of compartments may be removed. As flooding a compartment means loss of that compartment's buoyancy, flooded water-lines are obtained by employing the N.A.C.A. method with the flooded compartments being investigated, removed entirely from the model.

The model pivots at the center of gravity on two ball bearings. From the pivot the model is suspended by a flexible cable which passes over two ball bearing pulleys to the counterweight pan. The fore and aft balance is obtained by moving lead

weights along the machined surface of the dural channel. The vertical adjustments are made by moving two lead weights in the vertical slides located near the center of gravity. The trim and draft is measured by scales located at the center of gravity and step respectively. By providing several center of gravity locations and calibrated weights in the weight pan, the water lines for a compete range of loadings may be obtained in a very short time. By plotting these data in chart form, the draft and trim for any condition of flooding at any load and balance can be obtained by picking the answer off the curves. One of the illustrations shows the compartment between bulkheads two and three flooded.

The Model 31 displacement model was made of pattern pine, and required approx. eighty man-hours to build. Sixteen man-hours were required to obtain the flooded waterlines for seventeen conditions of flooding throughout the entire range of loadings and center of gravity locations. Previously, when the model 31 was in the proposal stage, the flooded water lines were computed for a slightly different hull at one load and one center of gravity location, and approximately one hundred engineering man-hours were required to prepare the charts and compute the results. Approximately fifty man-hours additional would be required for each additional load or center of gravity position investigated. By use of the displacement model, the effect of modifications to the hull lines or location of bulkheads can be determined in a very short time.

These tests provide the information required to design the bulkheads and doors so that they can withstand the water pressures liable to be encountered. They also provide a means of checking the hull and assuring that there will be no openings that might allow water to enter an unflooded compartment when the draft is increased due to another compartment flooding. These features are extremely important in case of forced landing at sea where survival depends upon remaining afloat in a damaged hull.

This brief explanation describes only one of the many tests and experiments that are continually being conducted to insure the safety and quality of our flying boats.



Yea, this fishin business! Next thing we know Phil Bourque'll get out a pin and fish at home for a string of guppies! (He raises 'em and likely as not will lift out the mamma and papa so he can catch some of the smaller ones!) . . .

DRIFTING THRU DRAFTING . . .

By JEFF BOULEY Engr.

HOPING to improve the quality of this column this month we stole away one noon during the lunch period, seeking out quiet seclusion in the shade of the metal scrap boxes to pursue some inventive literary cogitation. However, our efforts to get away from the clatter of it all were in vain for we were suddenly jolted back to the world of reality by the daily visit of Felix Kallis, our local Salvage Engineer (without Portfolio). Felix has a very magnetic personality for it is miraculous the way those little bits of iron pursue him.

In the rush of things last month evidently we failed to post our representatives in the most strategic places, and we now apologize for our failure to ferret out the news of several important happenings. Among them were Etienne Dormoy's successful fishing trip—no fish as before, but nobody stole his liquor this time. Hank Baila, the Cosmopolis Cavalier accomplished such a quiet trip to the altar that even his companions in the Weights group did not learn of it immediately. Howard Schmidt also grew tired of restaurant meals and stepped out with the left foot forward; now the month of May will hold another anniversary for him in the future. Johnny Lockheed thoughtlessly arranged his wedding so that it occurred the day after our deadline for magazine contributions, but he thoughtfully passed out cigars the day before the event. That's confidence for you.

Don Kirk added further activity in our Wives and Lives department in following the trend of all the boys in the Structures group (take warning, Gerber!) into marriage on July second. Truman Parker acquired a son to follow with him the traditions and the destinies of the Stanford football teams. Bill Wheatley came to work one day with the excited announcement "It's one!" and further questioning revealed that a new little daughter had joined the twins. Not to be outdone by Charley Yater's announcement of his silver wedding, Bud Moerschel will soon put in his bid for the title of the "Grand Old Man of the Drafting Room". This was uncovered in a sensational trade last week wherein for receipt of this startling information we relinquished all further claims to several inches of space in the bomb compartment already "stolen" by the power plant group for piping. It seems that the venerable Bud is tottering on the brink of granddaddyhood. Tsk! Tsk!

Charley Mohr started on a new chapter in his life recently when he parted with a

documentary summary of his four years of work at *Consolidated*. If his mind seems a bit blank or his thoughts waver as he is consulted about various subjects it should be overlooked, for he was finally prevailed upon to change his table cover. It was more than a table cover to Charley—it was a saga of his stay in San Diego, bearing calculations of hull stringer strengths, phone numbers, overtime hour tabulations, important dimensions, drawing numbers, mileages, tide tables, grocery lists, schedule of his infant daughter's weight, his hat, collar, and underwear sizes, and the family budget. Small wonder that he is a bit at sea with his wife away at the same time on an extended visit.

Our failure to attempt anything poetic during the long hour schedule has struck a responsive chord in the soul of sympathetic Johnny Winter who practically cinched the title of poet laureate with various and sundry verses concerning our work. One of his contributions relative to the single time clock is hereby committed to posterity:

The clock now says that it's five-forty-five,
And I'm sure more dead than I am alive,
For the overtime certainly has got me down,
With a wrinkled puss and a perpetual frown,
But the day's greatest ordeal I still must meet,
Among swinging arms and trampling feet.
Down the aisles they come like the thundering herd,

With many a push, perhaps a sharp word.
At last I'm in line, about two hundred in front,
Squirming and turning midst many a grunt,
For tickets at the theater I've stood in line like a
rock . . .
But it's a — of a lot harder to punch the
time clock!
"Droopy."



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HOT SHOTS FROM WELDING

By Bill Hartman

OUR embryo cowboy, Gus Fougeron, tried entering the Lakeside Rodeo, but not belonging to the cowboys' local, they disqualified him. To do them dirt our hero tried to run a young rodeo by himself. Whilst out cantering one moonlit night, Ole Gus spies himself a calf. Oh, says he to himself, here's where I practice my roping. So he unslings his trusty lariat and heaves a mighty heave and manages to settle the noose around . . . no, not his own neck, but the calf's. Yes, sir! Right smack-dab! But did Mrs. Cow's little offspring stop at that? Oh, no. Off on a tear she flew and Gus? Well, Gus ups and over the horse's head and tears right along with Miss Bossie, finally ending as all good things must end in the well known pile . . . that's part of every cowman's life, and I don't mean roses.

Harold DeRemer, our master Sandblaster de luxe, has finally decided to middle aisle it, sometime in September. All us

old-timers have tried to discourage Harold, but love has a stranglehold on his right now. Oh, well, we can always say, "I told you so!" Anyway, best wishes from the whole gang and lots of luck to the future wife and may all your troubles be little ones.

They say "To live alone is not good for man." To be sure it's true for the case of Art Bommer, who lives alone save for 8 or 10 horses away up on Kearny Mesa. Poor Art. Cooked himself one swell steak one night thinking what delicious sandwiches he'd have next day for lunch. The next noon time came when lo and behold poor Art had left his steak sandwiches at home . . . And so the moral is, "To live alone breeds forgetfulness," or is it? But that is mild compared to Kurt Kruger. Now, there's a fellow who really forgets. Twice in one week he left his car radio on all day and twice he paid to learn you can't do that.

When that feeling of curiosity grips a guy it's a hard thing to shake off, as Brownie can well testify. When Otto left a sandwich on his table, ole curious Brown had to go have a look-see. Result! Fooey! Limberger cheese gone bad. Wow! Now Brownie's nose knows!

Pity poor Frank Kastelic. After digging 22 post holes in hard 'dobe and taking 2 days to do the job, he found he had 'em in the wrong place. . . Ouch, my back! Frank should have bought 'em already dug.



Answers to Aeronautical I. Q.

1. Chine.
2. Wind cone.
3. Capt. Hegenberger, Wright Field.
4. 469.225 m.p.h.
5. Oleo gear.
6. Inclinometer.
7. Fish tail.
8. Skeg.
9. Thirteen.
10. Robert H. Hinckley.

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PRODUCTION MINUTES

By "Brad" Bradshaw

JULY has gone, leaving several interesting events highlighting the capers of our fellow *Consolidators*, during the month. Many were as per schedule and some purely accidental resulting in red faces that could not be attributed to this California sunshine. I took in as many as possible without paying, but am finding it pretty tough sneaking by the "bouncers" of late. It being "agin the law" to assault a cripple, probably made the column possible this month.

The scoop of the month leaks out from the room where the Thomas Butterfield clan puts on the "feed bag." Whether because of being a frugal man or the symbolism of the name itself "butter" has become a horrible word and is disrupting the peaceful bliss of the Butterfield home. Many a hand has received a severe laceration when stealthily reaching after a second helping of this precious product of our bovine friends. Helen, faithful wife of 15 years said "It's mighty embarrassing to see the Mesdames Mary Brown, Betty Mulroy, Marian Taylor, Johnny Hartmayer, Mae Doer and Arlene Golem trooping in for the weekly pinochle session each carrying a stick of butter for her lunch." Tom's sister-in-law, Mrs. Elizabeth Rogers, who is visiting, contributes "I keep a dish of butter hid in my dresser drawer, but it gets mighty thin and greasy these warm days and I feel like a gold hoarder." I can't get the answer to all this but I do know my parts will have to be plenty dry coming from the paint shop. Yep, Tom Butter—? is the inspector.

Old lady jinx has been hanging pretty close on the tail of the Production softball team but although near first in the standing (reading from the bottom up) the lads have been playing some swell ball and having a lot of fun. The moniker I hung on Roy Coykendall in last issue is not a fitting tribute to this "rookie sensation" since he took over the hurling duties for "deah old Production." After watching those "stickers" swing at Roy's fast ball, we hereby dub him "Cannonball" Coykendall, and the youngster is twirling fine games. That fence ball he throws now and then is just to keep Captain Matusek awake in the outer garden and give him a little exercise. Says Cap Matusek, "After that game with Hull I know just how the mighty Casey felt when he plunged Mudville into sorrow." But I deny that Les got four beers for the game as four is too many beers for that Hull bunch to buy. Mebbe two. Ralph Way, that handsome devil

Banish summer fag this pleasant way

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who is playing a lot of shortstop has really been pepped up since he had the honor of taking the carcass of Judy Garland, young movie actress for a crawl at a San Clemente dance recently. If that's the answer, Ralph, I hope the gang will all take an excursion to Hollywood. Jack Mulroy, wife and daughter continue to be the faithful followers of the team and are in the stands every game. Let's give 'em a hand, fellows. When Gracie Koenig and Lloyd Bender both showed up for a game, the lads celebrated with 18 runs. Let's get the entire department out and make a killing.

There's a reason for that worried look on the faces of Don Rasmussen and Craig Clark when the games run too long. "If I don't have dinner ready when Elizabeth gets home, she is furious and I have the dishes to do alone," wails "Dagwood" Don. And "Ferdinand" Clark adds "My wife says those flowers have to be watered no matter what time I get home." Those little chores are apt to keep some deserving young females from grabbing off a husband from the team. But Kirby Higdon informs us that he will have to get hitched before he can get out to play as it's impossible with his present "sparkling" schedule.

Swinging along the grape vine we were able to intercept the following static: Howard Bell with a San Diego donated "Annie Oakley" and fifteen cents goes to see the Padres and Los Angeles play ball and roots like the devil for the "Angels."

METAL BENCH

BENNY KIEGLE has been around to inspect and see what other gardens look like so that he may use these ideas on his own. Ted Edwards says if Benny will tie the bull in his yard he won't have to look any farther. Benny only looks, anyway, because he gets his exercise at the chiropractor's office. No. 2938

Bill Milton says he would like a picture of his chicken ranch put in the *Consolidator* but he is afraid that there won't be any room for his in this issue after the Kiegles and Edwards get their home-stead printed. No. 2930

Henry Doerr is going strong on the hamburgers and Hot dogs. . . Has lost weight since his wife is visiting in the east. No. 2930

Bill Milton (nibbler Bill) says he will buy his cigarettes from now on because he can't trust the ones he buys. They are dynamite. No. 2930

We notice Albert Heigle is watching the grape market and limbering up the old wine press. It won't be long now!

No. 2930

This wins for him the title of "Ornerest man of July." Gracie Koenig came back from Buffalo with so much energy she burned the bearings out of the "Underwood" in four hours. "For heaven's sake Gracie, not another romance?" Russ Gaughen broke that string of 40 trips to the plate without a hit and is now going better on the diamond than in his social activities which is really stepping.

Al Ballard, wizard of the Cutting Department figures more angles than those going through the trim saws. He propositioned the writer to save the badly dilapidated plaster cast that has adorned

my wobbly knee for several weeks to be hinged and used on his own creaky pin that is coming loose at the seams. Then by exposing the southern end of his anatomy when traveling north, he attempted

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to move Hank Leigle, his foreman, into gathering up a donation for a pair of trousers to save the department from humiliation.

Al Ambrose is still having palpitations of the heart each time he thinks of what he would have encountered at home had he failed to place that dollar bit on the "nag" the wife picked out and, which according to form, only had a chance to finish if the jockey carried him down the stretch. But the "Oatburner" breezed in and paid 50 to 1 and whether Al or the "nag" was more surprised or wobbly at the finish is a question.

If there were only more free beer parties

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like that "gulp, Guzzle and burp" setto given by the A.B.C. Brewery for the N.A. A. we would never have to worry about filling a stomach or column for where there is beer on the house there's *Consolidators* under the table and plenty of news. Earl Prudden, dynamo of Ryan Aerona-tical, Bud Waterbury and Russ Kern, two local boys who made good, handled everything in great style from checking us in until throwing us out. Jack Mulroy found the hosts not so dumb as the windows were all just a little smaller than the barrels, and they will not hire a dispatcher. My boyhood friend from the hill country who downed 54 ounces of that sparkling fluid in 28 seconds for a new sectional, national and olympic record was not a professional as some believed. Honestly, the lad never knew they put up liquids in anything except gallon jugs before. He complained of being mighty thirsty on the trip home, blamed it on the arid climate and am I glad the drinks were on the house. Those very interesting and educational pictures of the "PBY Record Breakers" topped off a swell evening's entertainment, and seeing them we believe if the movie scouts were on their toes, we would be minus some good mechanics and Hollywood ahead some good actors. The only scenes unnatural were watching some of the fellows moving so fast and others photographing a look of intelligence. And I am not referring to Jack Kline, Larry Boeing, nor inspectors in particular. One, two, three fellows, A.B.C.!!!

John Lockwood has forsaken that air-conditioned office for the honorable and leg-conditioning position of dispatcher. On the first day of "hot footing" over the plant, John had shed the coat and necktie and has been gradually decreasing his wearing apparel each day. So at any time now, he may appear wearing his shorts and carrying a fan and roller skates.

The mountain lions and coyotes were aroused from their slumber and sent

streaking toward the safety of the tall timbers a few nights back as President Tom Butterfield and his band of San Diego Flying Club members took over the mountain recluse—Sunnyside—for a night of "Whoopee" making and annual dance. Tom, Frank Buzzelli, Henry LeBoffe and other flying enthusiasts, as usual, came thru with a Gala event. Al Griffith, Jack Mulroy, Harvey Muck, Ray Hartmayer, Howard Golem, Harold Brown and wives, were only a few of the youngsters who gave the old building a sample of how *Consolidators* "Shake a leg" that made the rafters groan. Jeff Bouley, peeping Tom and scandal slinger of Engineering sure missed some front-page stuff by not being there and seeing Goodyear, Eldred, Duncan, Harter, Walker, Palsulich, McDonald, and others of his department going thru figures that they could never duplicate with compass, straight edge and pencil. It was a swell dance and if there had been a hack saw handy, I would have cut off that cast and taken one of those pretty females for a whirl myself.

"The horn on your car must be broken?"
 "No, it's just indifferent."
 "Indifferent! What do you mean?"
 "It just doesn't give a hoot."

COUGHLIN'S COUGHINS

THE Engineers held their monthly Golf Tournament at the La Jolla Country Club on Sunday, July 16, 1939, and was a grand success.

These tournaments are getting very popular with the Engineers there being a number of new golfers competing it goes to show that the boys sure enjoy their golf.

Below are listed the winners of the last tournament:

1ST FLIGHT

1st Low Net—Hemphill	67
C. Ekrem	67

2nd Low Net—Meer	69
3rd Low Net—Ring	71
Sutton	71

Low Gross—R. Miller	81
Low Putts—Yater	31

2ND FLIGHT

1st Low Net—Devlin	69
2nd Low Net—N. Ekrem	71
3rd Low Net—McGuiness	72

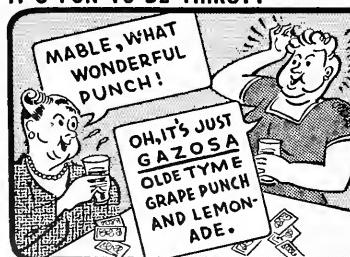
D. Miller	72
Low Gross—I. Craig	96
Low Putts—Watts	32

Lutz	32
Weber	32

3RD FLIGHT

1st Low Net—Rosenbaum	73
2nd Low Net—Rohn	74

IT'S FUN TO BE THIRSTY.....by Gazosa



Gazosa
 5¢
 ROOT BEER
 GRAPE PUNCH

With your lunch
 drink a bottle of
 Gazosa.

3rd Low Net—Whitney	77
Low Gross—McCabe	114
Low Putts—Achterkirchen	35
Wainwright	35
4TH FLIGHT	
1st Low Net—Heim	70
2nd Low Net—Whitaker	73
3rd Low Net—Mohr	75
Low Gross—White	127
Low Putts—Clement	41

The next Engineers Golf Tournament will be held at Rancho Santa Fe Golf Course and the date will be posted at a later date.

BOWLING

If you should go out some Thursday evening and visit the Sunshine Bowling Alleys you will find two teams in the Summer League represented by personnel from our *Consolidated* Bowling League. These teams represent "The Jessop's Jewelry Co. and The Ben Towers Jewelry Store". All the boys are having a good season. Come down and cheer them on; they will be glad to see you.

Notes:

Mr. Bowlin of the Loft has returned from a 6 weeks trip to his home in Holyoke, Mass., with his family. Welcome back to the fold.

W. Wimer, after spending two strenuous weeks at Lindbergh Flying Field with the Reserves, has returned to his duties in the Loft Dept. We hope Bill has found some new ideas on whether the bend line should be dotted or ?

If I. Craig keeps playing golf and betting the boys he will shoot 95 or under we will have to see that he wins from now on for he expects an addition to the Craig family soon. Good luck, we hope it's a boy.

Our new golfer, Heim, sure is coming along strong, started playing only last month and comes along and finishes 1st in his flight. Keep it up Carl, you will be in the 1st Flight one of these days.



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on

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(which also provide a return of 15% on the premium, provided no losses are incurred during the 12 months the policy is in effect)



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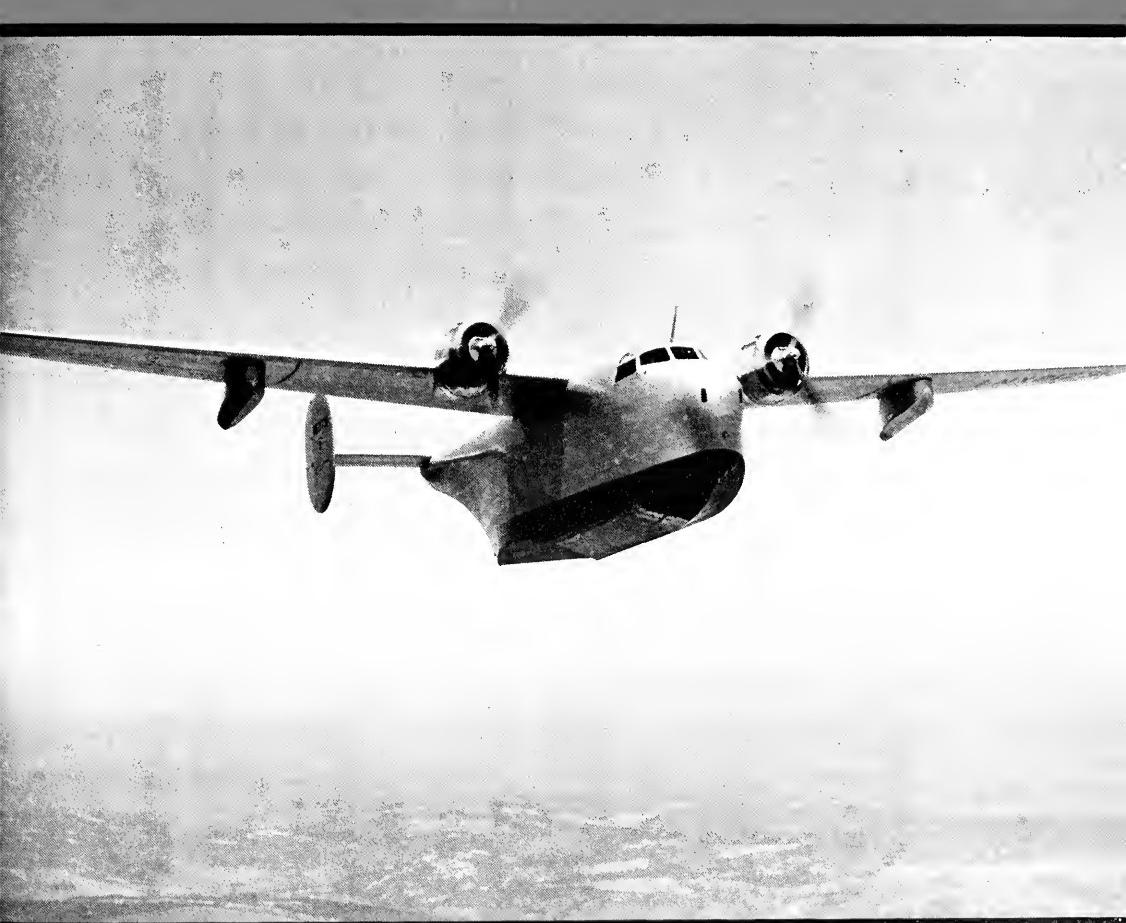
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TO (and for) THE
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San Diego . . .
EST. 1923

CONSOLIDATOR



SAN DIEGO'S BACK COUNTRY CATCHES A GLIMPSE OF MODEL 31

SEPTEMBER • 1939

AERONAUTICAL I. Q.

By D. R. K.

Credit yourself with ten for each question answered correctly. Answers will be found on page 10.

LEARN TO FLY

- You get your instruction IN THE AIR.
- You have a wide choice of planes to fly . . . 50 h.p. Cubs, low wing Kimmers, Fleet Bi-Plane, Fairchild, Waco, Douglas Bi-Plane and others.
- Free Ground School Wednesday nights for students who fly with us.

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**\$2 50 PER
LESSON**

YOU don't have to sign up for a whole course and pay for it in advance at Speer's. Take one lesson or as many as you need. Ask your buddies.

PAY AS YOU LEARN AS YOU FLY.

SPEER FLYING SERVICE

Barnett at the Causeway - Opposite Marine Base
Free Courtesy Car to Field from Broadway and 5th Avenue Landings.

FULLER PAINTS

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PAINTS
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The August, 1938, issue of the Sportsman Pilot contains an excellent article on patrol flying in a PBY. The article is by Wm. F. Hausman of the Marine Corps, and well worth the trouble of securing.

If you think the Wright Brothers just started in and built an airplane . . . then the article "The Wright Brothers as Researchers," by Geo. W. Lewis, F.I.Ae.Sc., Director of Aeronautical research, which appears in the August issue of Aviation, is called to your attention.

AERONAUTICAL I. Q.

By D. R. K.

Credit yourself with ten for each question answered correctly. Answers will be found on page 10.

1. The largest propeller test rig in the world, capable of whirling a 45-foot prop. 4300 R.P.M. and requiring 6000 H.P. for operation is located where?

2. How much money will be disbursed by the Navy's Bureau of Aeronautics under the Naval Establishment Law?

3. What is the new American record for altitude in a sailplane?

4. Who were the first Army Air Corps pilots to solo?

5. Who has developed the first four-bladed controllable pitch propeller with the aid of the U. S. Army Air Corps?

6. The difference between the geometrical pitch and the effective pitch of a propeller is called what?

7. What is a heavy jet or vertical sheet of water thrown above the water surface behind a seaplane float called?

8. What term is used for the height of the lower level of a bank of clouds above the ground?

9. How many airports are there in the United States and Alaska at the present time?

10. What corporation has the record for making the largest number of multiple engine flying boats in the entire world.

Good Food at
Moderate Prices

Open Sundays
and Holidays

Morgan's Cafeteria

1047-1049 Sixth Ave.
Between Broadway and C St., San Diego

"High Altitude"
QUALITY
"Grounded" Prices

AT

SAFEWAY

CONSOLIDATOR

Volume 4

September, 1939

Number 9

NOW IT CAN BE TOLD

IN the Annual Report to the Secretary of the Navy by the Chief of Naval Operations, Admiral William D. Leahy, U. S. Navy, for the Fiscal Year 1939, there appears an account of the operations of the 48 PBYs which left here on January 10th to participate in the war maneuvers. The report discloses the rather extensive flying and matter of fact utility of these planes in the course of these maneuvers:

"Although part of regularly scheduled exercises, the operations of Patrol Wing One in connection with Fleet Problem XX are worthy of note. That wing, comprising 48 patrol airplanes, departed San Diego for Coco Solo, non-stop, on January 10, 1939, and arrived at their destination on January 11. From Coco Solo the wing flew to San Juan, Puerto Rico, on January 23 and while based in that vicinity participated in Fleet Landing Exercise Number Five and Fleet Problem XX. After completion of Fleet Problem, Patrol Wing One proceeded non-stop from San Juan to Norfolk, Virginia, on March 9, and while on the East Coast participated in a Joint Air Exercise off the New England Coast, basing at Newport for that purpose. Two squadrons of this wing were retained on the East Coast, the remaining two returning to San Diego by way of Guantanamo, Coco Solo and the Gulf of Fonseca, leaving Norfolk on May 1 and arriving San Diego May 10. Exclusive of distance flown in connection with the Fleet Problem, Patrol Wing One covered a distance of over 10,000 miles on its cruise."



DOG SHOW

J. W. Von Rohr of Inspection is very much interested in the Dog Show to be held September 2d and 3d at Balboa Park in the Federal Housing Building. The reason: Rohr has been raising Cocker Spaniels on his place at Santee, and is going to enter four Cockers of his own breeding in the event. According to the information received, the show is under the supervision of Capt. C. S. Beale and the American Kennel Club, and between 600 and 700 dogs of various breeds are expected to be shown.

LET'S COOPERATE

COOPERATION of the employees of *Consolidated Aircraft Corporation* will be an important factor in the approaching Community Chest campaign which will be conducted in San Diego from September 28 to October 14.

Included in the Community Chest are 35 agencies whose services extend into the fields of child care, family welfare, health, neighborly aid, and youth guidance. Broadly speaking, the work of these agencies is preventive and reconstructive. The services are capably directed by earnest men and women skilled in their tasks. These agencies, through health units, are helping to prevent disease; through youth guidance organizations, to prevent delinquency and its off-shoot, crime; through relief and welfare groups, to prevent destitution.

Under-privileged children are brought under wholesome influences which encourages them to develop into self-respecting law-abiding members of the community. Youth guided into the right paths and trained for parenthood and finer citizenship will become good neighbors and community assets.

Families aided in their fight against dependency regain courage to make their own way, and ease the taxpayers' relief burden.

Emergency governmental measures, whether they be County, State, or Federal, do not, and cannot, take into account such services as these. They have been, and probably always will be, the community's collective responsibility and obligation.

The San Diego Community Chest, established 18 years ago, unites the 35 agencies into one great program of social service, and only one appeal for support is made each year. Formerly, there were several independent programs and individual fund-raising efforts.

The Chest method is working effectively in more than 450 American cities. One of its soundest features is that it gives each wage earner an opportunity to make it possible for less fortunate members of the community to receive the services of

COMPLIMENT

Mr. Van Dusen, our Vice-President and Works Manager, recently received a letter from Aviation Corporates Limited, our London Representatives. Within it was contained a copy of a letter from an English publication to which Aviation Corporates had been kind enough to supply pictures. The pictures were taken of the *Consolidated Model 28-5* upon her arrival at the conclusion of her delivery flight across the Atlantic. The letter thanked Air Corporates for the pictures, and wound up with a P.S. reading:

"She seems to have arrived in a very clean and tidy condition, but perhaps your clever crew wiped the spots off before the photographers arrived."

That surely is the finest compliment yet received.



QUICK TRIP

We're working for aviation . . . aviation works for us. Recently it was necessary for our Vice-President Ed Gott to make a trip east on behalf of the company. To show you how the crossing of the country by airline saves time and business hours, Mr. Gott left Los Angeles Sunday at 4:30 p.m. arrived in Washington, D. C. Monday at 10:12 a.m. Four full business days were put in and Mr. Gott boarded the 4:45 p.m. plane out of Washington Thursday night, arrived in San Diego at 10:10 a.m. Friday. This means that he was only gone 4 days and 5 nights . . . but spent 4 full business days in Washington.

This trip was made via the American Airlines route, and so accurately do the planes depart and travel on schedule, that strip maps are supplied to the passengers, marked off with fifteen minute spaces. Thus it is possible simply to look at your watch, count off the fifteen minute intervals on the map since your departure, and know your position exactly.

these privately supported Chest agencies.

Chas. T. Leigh, vice-president of this company, is a member of the Community Chest's budget committee.



THE PRESIDENT'S COLUMN

FOR some time a message to all *Consolidated* employees has been in the back of my mind, but the press of business has made it impossible for the last few issues. Now, with the receipt of the announcement of our new award from the War Department for \$8,485,000 of additional aircraft, it is fitting to look back at what we have accomplished and the work that lies ahead of us. Contracts received this year total well over \$17,000,000.00, bringing to *Consolidated* a sizable backlog of work to be done. This, translated into terms of employment, means that we shall have work for an increased number of employees for some time to come. The effort and concentration on securing this business has been well worth while.

Four years ago this month, as you will recall, we started work here and began increasing our payroll in a factory which we believed would be adequate in size for our needs at the time, and to take care of anticipated future business. Within a very short time it became apparent that we would have to expand to handle even the business on hand, and the necessary construction was undertaken. Subsequent business justified that expansion, for at the peak we had some 3,800 employees on the roll. By late this fall, due to contracts now on hand, our personnel should have increased to 3,000 employees. This will necessitate the hiring of a considerable number of men. In fairness, every effort is being made, in so far as is possible, first to reach former employees and extend them the opportunity of our employment.

With a business as exacting as is the

construction of modern aircraft, complete co-operation in every detail of the work is highly essential. I need only point to the results of flight performances of the PBYs and commercial model 28 airplanes which we have completed for the United States Navy, Mr. Richard Archbold, the American Export Airlines and the British Air Ministry to illustrate that you as workmen in this plant have made the highest quality of product your aim and that the cooperation has been whole-hearted.

It was just three years ago this month that your magazine, the *Consolidator*, had its beginning. In these three years it has been a fitting medium of expression and I have noted the splendid manner in which many of you have contributed your specialized knowledge in the preparation of articles of intense interest to all. This is another way of expressing the cooperation that makes the building of our outstanding aircraft possible. Sometimes we do not fully appreciate the fact that each one of us is a specialist in a particular phase of the work and that it is the combined efforts of all that form the backbone of the Corporation. It is good business for us occasionally to pause and transform some of this specialized knowledge that is ours, into simple understandable reading matter, so that other members of our corporation can appreciate the variety of work being contributed to in the building of our aircraft.

That we are sometimes not fully aware of what our fellow workers are doing was forcibly brought home to many by our moving picture, "Building the PBY Record Breakers." Here undoubtedly many of you saw some of the processes and operations for the first time. Probably you had not had the opportunity of witnessing them before, simply because you were busy at your job while they were being done. Yet, as you realize, each of these processes played a vital part in making possible the remarkable performances of our aircraft. It is through the pages of the *Consolidator* that you can broaden your fellow workers' knowledge of these processes and operations.

I wish to compliment each and every contributor, over the period of the magazine's three year span, on what he or she has freely given, of personal effort to our magazine.

We *Consolidators* have one of the finest aircraft manufacturing plants in the world and much of the very latest in special equipment. We have become established in a beautiful city with an excellent climate in which to live, and in our plant personnel

have one of the best groups of skilled men ever assembled for a single purpose. Our Government, through the War and Navy Departments have expressed confidence in these facts. Thus we have an opportunity of showing the country what we can do in the production of fine aircraft. There but remains for us to give of our ability in the production of these airplanes. These are of course the types of aircraft that have been selected as best giving our country the state of preparedness it needs for any eventuality. Within the periods ahead required for the performance of the contracts, we should do all possible to produce in full quality and quantity, the share of aircraft that has become ours by virtue of the confidence which the Government of the United States, through its War and Navy Departments, has placed in us.

We must bend every effort to ensure the fulfillment of this priceless obligation.



Among those who visited the plant last month were the president and vice-president of United Air Lines, Mr. W. A. Patterson and Mr. Harold Crary, respectively.



Bricklayer, Par Excellence

Chief Inspector Jack Thompson did a bit of "extraterritorial inspection" during Factory Manager Jim Kelley's absence on his vacation. He noted that Jim Kelley's yard didn't have an outdoor fireplace and grill. What would be better, Thompson thought, than to surprise Kelley on his return with a complete outdoor grill, all ready to go? So he took Leo Bourdon into the idea and the two of them set to work. They got a load of bricks, mortar, fire clay, the necessary ironwork and began working week-ends.

"Jack Thompson," says Leo, "has been holding out on us. He's an artist in laying bricks from away back, and the amount of brickwork he can turn out in a day is a revelation."

Apparently, however, Thompson didn't get the idea quite soon enough. Despite the fact that Thompson and Leo worked one Saturday from 7 a.m. 'till 5 p.m. with scarcely time out for a sandwich, mixing their mortar, moving and placing bricks, fire clay, etc., Kelley cut his vacation short, came home sooner than expected and found the grill in the course of construction . . . Both the "culprits" faces were a brick red when Kelley showed up unexpectedly at the plant. "If he'd only stayed away that extra week-end we expected . . ." was muttered under their breaths. Incidentally, Hank Golem was supposed to help, but managed his vacation at the proper time.

September, 1939

HOT SHOTS FROM WELDING

By Bill Hartman

PACIFIC BEACH residents attention: The firm of Brown and Kastelic will do a cheap job good, on any and all landscaping work. They have just completed a job on Kastelic's new home and a right smart piece of work it is too, if they do say so themselves . . . It seems as though Art Bommer, our well known equestrian is a born fool for luck . . . all bad. Art left his car at the gas station to have an oil change only they forgot to put the oil in and Art all too trustingly drove half way home . . . now the station attendant is picking up the pieces.

Harold DeRemer marries Camilla Reynolds of Talmadge Park the first week in September. After an extended tour of northern California and Oregon, the couple may be found . . . somewhere in east San Diego. Harold invites all his friends to come out and partake of some ginger ale and such. Incidentally he has been batching with his father for so long he really knows which end of a broom does the work. Nice training for a newly-wed—says us!

Benny Kiegle (who doubts very much if Civil Service is here to stay) says if those certain three welders who eat smoked fish only knew what it smelled like, they wouldn't eat it . . . Hyyaboy?

Frank (Technocrat) Sechrist, who is a rabid ham radioist tells us he sits up 'till the wee sma' hours dot and dashing it over with the hams as far away as New York. He says he listens to their world fair stories and then sells them on our fair. Well, all's fair at both fairs, eh, Frank?

Gus Fougeron is on a soup diet and boy, is he burned up. A cowboy has to have his meat and beans and poor Gus is without teeth, having 'em yanked out so's he can get store choppers. Poor Gus stough, and we don't mean steak!

Geo. Draper is waiting so anxious like for the deer season to open so's he can get that buck he didn't get last year. Don't forget, George, all the gang will be there for that venison barbecue.

Glad to welcome back Villain, Gatchell, Shaw, Higbee and Bowers, who have been sojourning up north, none of whom look the worse for wear.

Now that "El Coyote" has been captured down Tijuana way, Kurt Kruger need not sit up nights guarding those three banty chickens of his.

When asked to bring a picture of his house in for the *Consolidator*, Vic Perry says he wouldn't as his dog was using it now. Well, we all get in there once in a while Vic, so cheer up!



THE GUBA CREW

Steve Barrinka, Lewis Yancey, Richard Archbold, Russell Rogers, Ray Booth, Gerald Brown.

THE following letter was sent by Mr. C. A. Van Dusen, our Vice-President, to Mr. Richard Archbold. It is reproduced here as it expresses the appreciation of the whole plant for Mr. Archbold's accomplishments, and the very striking "demonstration" of the capabilities of our aircraft:

July 14, 1939

Mr. Richard Archbold,
Biological Explorations, Inc.,
New York, N. Y.

Dear Dick:

We in *Consolidated* are delighted with the marvelous flight records you and your crew of the Guba have made in connection with the expedition to New Guinea. I believe the following new flight accomplishments were made:

1. The first time an airplane has flown around the world at its greatest diameter.
2. The longest flying boat over-ocean non-stop flight—Dakar to St. Thomas, Virgin Islands.
3. The first time a flying boat has flown around the world.
4. The first time an airplane has crossed the Indian Ocean from Australia to Africa.
5. The first time a flying boat has crossed Africa.

We wish to congratulate you and the Guba crew on these accomplishments which speaks well for the crew of the Guba and your organization. The fact that the flights were incidental to the main purpose of the flying boat with the expedition and without any extraordinary fuss, is truly remarkable in view of the accomplishments.

A general inspection of the Guba shows it to be in remarkably good condition. As a matter of fact it is apparent that there

Charlie "What a man" Pettit is happy now since they've put in that spare bedroom for him. He is like a young boy in his first long pants. "Pettit's Palace" grand opening announced later, with a gigantic fireworks display from electric welding torch . . . bring your own lunch.

will be hardly any repairs required as compared to what would ordinarily be expected from an airplane that has been flown more than 1000 hours and has been stationed in the tropics with very little in the way of facilities such as are ordinarily available in the operation of equipment of this character. The expedition has succeeded in proving that military equipment of this class can be stationed in remote locations for long periods of time with only a small amount of facilities and personnel for upkeep. This means that in case of emergency the Navy could send its flying boats to any part of the world with the assurance that they could be of extreme value as a military weapon, even operating in such remote locations as the Philippine Islands, and without benefit of elaborate bases and large numbers of upkeep personnel.

Needless to say, *Consolidated* fully appreciates all of this.

We are looking forward to seeing you in California in the near future. Major Fleet, Mc Laddon, Learman, and in fact all of our executives, join in kindest regards.

Sincerely,
Consolidated Aircraft Corporation,
C. A. Van Dusen,
Vice-President.

After looking at the wallpaper in Junior's room, we have decided to make him a fingerprint expert.

Cellophane is applied psychology.

 J. E. DRYER, PRES.	EVERYTHING FOR YOUR HOME AT SENSIBLE PRICES and on CREDIT TERMS DRYER'S STANDARD FURNITURE CO. 2368 Kettner at Kalmia
---	---



WELCOME KINNEY

We welcome back to the *Consolidated* plant, Charles E. Kinney, who since 1937 has been stationed at Coco Solo as our Service Representative, looking after the service requirements and performance of the Navy's brood of PBYs stationed there.

The work, the food, the tropical clime, a bit of a vacation thrown in and a recent event, apparently have been good to Kinney. It is rumored that he could not have flown back, due to the extra weight he took on, and therefore was forced to return by boat. Actually, Kinney admits having added a mere 12 pounds during the two years. Kinney had the experience and pleasure of flying down to Coco Solo with the VP 3 Squadron . . . the first massed flight from San Diego to the Canal Zone. That in itself was an outstanding personal event, but a more recent one stands out

even more so. On July 15th, last, Miss Dolores Spencer of Santa Ana became Mrs. Kinney. The wedding took place in Santa Ana . . . and now Kinney is stepping back into the harness here. Congratulations and best wishes, even at this late date, from all the gang.

H. E. Kraus, our Service Representative in Honolulu, we learn, has returned from there with Mrs. Kraus and is at present on vacation. Mr. Kraus will be back at the plant about the middle of the month.

SAFETY TIPS

For new men coming to work here for the first time, and for some of us older fellows who are apt to get a bit careless, here are some good safety tips prepared by "Mac" McDonald, day First Aid Chief, and "Nic" Walker, on nights, as a guide for avoiding accidents. How do you stack up on this list?

1. Keep your fingers off of the opposite side of material when drilling. Use a small block of wood where the bit will penetrate the stock.
2. If you believe you have a foreign body in your eye, take time out to come to First Aid and find out, for the longer it remains in the eye, the deeper it will become imbedded.
3. Don't try to lift heavy parts that are beyond your capacity, just to show someone you're a "he-man"—get help.
4. Watch your step when stepping off a high spot. A severe sprain or a fracture of a bone of the foot may be the result.
5. Watch those squeezers. They have been made almost "fool proof" but still can do damage to a "wise guy."
6. Use the air hoses for purposes intended. A foreign particle blown in someone's eye may result in the loss of eyesight. Air hoses are not intended for clothes brushes.

7. Don't pull a plug from "plug boxes" after cleaning the interior of a ship. An explosion may be the result.

8. Knock off the "horse play" in the factory. Go to Del Mar and play the horses—it's safer.

9. Watch the cuts on a lathe. they will curl into a spring. Stoo your lathe and break them off before they are thrown into your face and eyes.

10. Don't watch the arc welder: he will get along O.K. You may save yourself one of the worst nights that it is possible for a human being to spend. Eye burns from simply watching an arc are one of the most painful of injuries.

"Every human institution is the lengthened shadow of a man."—Ralph Waldo Emerson.

VOTERS, ATTENTION!

That all persons may be able to exercise their right, and express their views in the election of November 7th, it is necessary that those not now registered, must do so prior to September 25th.

SAN DIEGO FLYING CLUB

By LaVier and Truemian

ACTIVITIES of the San Diego Flying Club during the past month have included much time spent on overhaul of equipment. This work covered a major overhaul of the engine for the Rearwin Airplane and refinishing the Taylorcraft. Much of the labor was done by club members under the supervision of "Spike" McCannon, energetic operations manager.

A feature of Sunday afternoon flying activity is the weekly spot landing contest between club members and supporters of Tyce's Flying Service. Location of the contests alternate between the home airport and Chula Vista Airport. To date the San Diego Flying Club is out in front, the first three meets having been won by members: McCannon, Petro and Anderson.

Every Sunday night spot landing contestants and spectators gather at Mr. and Mrs. Bob Jacquot's "El Monterey" on Route 101. Sunday, August 6th, will be long remembered for the delicious spaghetti dinner given by Messrs. McCarthy and Petro and prepared by Mrs. Jacquot.

Club Instructor, W. J. "Mac" McClain has resigned in order that he might accept a position of instructor with the Ryan School of Aeronautics. Mr. Harry Culver, who pinch hit for McClain, while the latter was at Randolph Field, has been named to fill the vacancy.

Continued good condition of the club airport has been assured by the creation of a new position, that of field maintenance manager. The first occupant of the newly created post is member Becker, well known both on North Island and in San Diego.

Solo flights were made during the past month by club members: Anderson, De Hoff and LaVier.

With both the weight of airplane engines and living horses variable, a rough basis of comparison is that the engine develops as much power for only one one-hundredth as much weight.

Nearly ten miles of high grade, special finish, nickel alloy coil stock was used to supply the PBY planes with bolts.

BIG
5
COFFEE

S.J. WINES CO. CO.
PERSONAL BLEND COFFEE
BIG 5 EXTRACTS
WINES IDEAL SPICES

On August 8th, our friend Emmet W. Clark, toolmaker, passed away. His high degree of skill, his devotion to his profession and his friendliness, will be missed by his many friends of *Consolidated*.

It will be thirty-six years since Wilber and Orville Wright made their first flight over the sands of Kitty Hawk, North Carolina, December 17, 1903.

SHEET NEWS

By "Scotty" McCartney

Poor Homer Millman . . . Goes out when the sun is not shining and really gets sunburned. Chamber of Commerce Note: The sun shines every day in California, even though you don't see it. No. 1738.

Welcome back to the Sheet Dept., Geo. Hope, and may you have a long stay in the California Sunshine! No. 1716.

Connie Seaderquist must be having good luck on the punch boards. He is sporting a new wrist watch. No. 1783.

Larry Boeing, oft a contributor to these columns, is somewhat of a flower fancier (this leaves him wide open for Ed Stewart) . . . Larry won a second prize for his tuberous begonias at the La Mesa Flower show.

Rupert Powder of Accounting, tennis player, badminton star, etc., etc., married Miss Elizabeth Baker in Reno, Saturday, August 19th. Congratulations and the best of good wishes!

WING KEYHOLE

By Browne

Mrs. Richard Bartlett recently returned from a three month's trip to England, Ireland and Scotland. "Limey" says he is through "batchin'" now.

Mrs. Leo Klingenmeier left for a month's stay in Buffalo.

All men interested in a Bachelor's club, sign up with "Limey" Bartlett.

We see "Army" Armstrong can put his hand in his pocket again, now that his finger is well. Army says he will think twice before he swings next time.

* * * Anyone wishing a hot tip on the day's races see Army, Limey, Frank or Harry for sure winners . . . Yeah?

Jack Campbell recently found that his Willys has only four cylinders. Better see if it has four wheels, Jack.

Al Vernon, Wing timekeeper, spends his spare time studying how to make a hole in one . . . in tennis.

If all the Wing tennis players turn out for the Doubles Tournament someone from the Wing is liable to bring home the bacon . . . we hope.

Facts About Femmes

By Kathleen Schneider

WE hope Irma Robbins is enjoying her visit to the old home town of Buffalo. Irma says when we are complaining about the "heat" in San Diego, to think of her sweltering in a typical August hot spell in Buffalo. (By the way, we're keeping an eye on you, Red.)

The main topic of conversation these days seems to be bicycles. So far, five of us have invested our capital in this sport and have mastered the art of getting the vehicles to move in an upright position. If Marcella Holzman, from all reports, keeps on trying to ride Gretchen's bike and stays away from ant-infested bushes, she may be able to go with us on a trek someday.

We miss Clara Sachs' smiling countenance and last minute contributions to the after-lunch conversations. We all wish her loads of happiness and best wishes on her recent marriage, and hope she will pay us a visit whenever she is in our neighborhood.

Blanche Davis, our genial telephone operator, has just returned from a visit with her family in Buffalo. Welcome back to your post in the lobby, Blanche.

And speaking about the new ice skating rink, we get a big kick out of the fact that the first one of our feminine *Consolidators* to brave the hard ice was none other than a native of sunny, snow-less San Diego. Louise Girodon has been ice-skating five times now and is becoming quite a veteran on the ice. She has several scars to show for her experience but she goes right back to the rink again.

BENCH CHIPS

Gus Johnson must think the telephone in the Bench Department has television. He answers yes and no by shaking his head.

I wish to express my most sincere appreciation to Mr. Young and all my friends in the Metal Bench Department and throughout the shop for their kindness and good fellowship. Adolf Germeinder, No. 2917.

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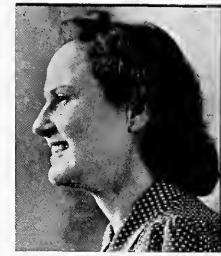
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Ann Howard is our second ice venturer, and she hastens to inform us that the bruises on her knee are from a tangle with her bicycle and not from ice-skating.

The new Fall styles definitely predict shoes with the heels in, which means (perhaps) that not so many hollow-sounding feminine footsteps will be heard around our halls this Fall.

Several of the fellows in the Ordering Department got into a disagreement the other day as to which one had the smallest waistline—so they brought out the old tape measure to settle the argument. And now who says the girls are the only ones to worry about their slim waists? (We really should embarrass the guilty fellows by mentioning their names in our column, but we'll let them off easy this time.)

Juanita Smith and Grace Koenig are staunch boosters for their respective departments' softball teams. Grace will bet a dime any day for the Production Department team, and "Miss Blue" will do likewise for the Maintenance Department team.

Lucille's new Ingersoll says it's time to cover up the keys on this edition.

DANNY'S NOTES

Our genial reporter of Tube Bending, Danny Whorton, and Miss Eleanor Butler of New York City, were married at 3:00 A.M., Sunday, August 20th, in Yuma Ariz. Danny was a little bit shy of news from his department this month, aside from noting that Norman Freakley has returned to the department and that Bill Plesierre, formerly with Final Assembly, is now in the department of tube bending.

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SOARING...

By Jerry Litell

IN a previous issue we covered the development of soaring in San Diego and took a short imaginary flight from the beach at Torrey Pines. This time we shall visit the Torrey Pines glider port, to see how they operate their new 2-place sailplane.

It is a typical summer Sunday as we drive out on the highway 101. You would hardly expect to soar on deflected wind today because, as you reach the divided highway at the top of Rose Canyon the tall Eucalyptus trees are just barely swaying and the blue Pacific is hardly ruffled between the big slicks, yet, as you cross the dividing "island" at the first Navy Speed Course marker another mile farther along you can see two sailplanes being assembled.

"I thought they needed white-caps to fly," you say.

"They did, flying from the beach without instruments, but they have learned a lot about soaring as well as aerodynamics and meteorology since then. They know, for instance, that this gentle breeze that you feel here at 300 ft. altitude will soon descend to the surface. Then, with the full advantage of the height of the cliffs plus some of California's sunshine reflected from the hot sands below, a skillful pilot may attain several hundred feet altitude in this light wind, provided he has a variometer."

"In his radio?"

"No, in soaring a variometer is the instrument that shows ascent or descent in feet per second. Man *can* fly by feel, to a limited extent. But only an instrument can tell him the force of the 'bumps,' and even their presence is often not perceptible to the human sense. The variometer is simply an aneroid barometer with a small

hole in it. When you climb the aneroid expands, but the expansion is checked by the leak, and as soon as the climb stops, the pressures inside and outside equalize themselves and the box returns to normal size. In a downdraft the pressure outside increases the air rushes in thru the pinhole to fill the partial vacuum, the faster the descent, the greater is the difference in pressures and the greater the hollow in the back of the box, until the descent stops and the pressures again equalize. The movements of the back of the box are transferred to a hand on the dial on the face which is calibrated in feet per second.

Now the pilot can tell 'Which way the wind blows,' linger around in updrafts and dive thru downdrafts, or air pockets, as they were called before soaring.

Then there is the bank indicator which is simply a spirit level mounted transversely in the cockpit. It tells you if you are flying level and whether you are slipping or skidding in the turns. The airspeed indicator on a glider or sailplane is usually a war surplus instrument 'souped up' with a venturi tube and re-calibrated to read accurately speeds of 30 m.p.h. and even lower. This is important because the sailplane flies very close to its stalling speed. An increase of only 2 miles per hour over the most efficient flying speed may eventually force the pilot to land if the wind is weak. Or a poor turn may bring him down where the lift is too weak, making a landing necessary, before he gets below the mesa. Bringing the ship back from the beach is considered a disgrace."

"So that is why you claim soaring improves your piloting! If you don't fly perfectly, you don't fly at all, is that it?"

"It is, here in San Diego, anyway. Our prevailing westerly winds are usually light or moderate, just enough for soaring a good

Top, left, the "Grunau 8" 2-place sailplane at rest. Center, A view of the glider port from the "Grunau 8" flying at about 300 feet altitude. Right, A busy day at the glider port. Bottom pictures are views taken from inside the sailplane showing the cliffs and emergency landing field (beach).

sailplane with careful piloting. It is certainly an incentive to practice smooth flying

Slope soaring in a weak wind is a continuous perfect figure eight, the maneuver that is to the pilot what the scale is to the musician. Not only must he fly well, but he must do it in the limited area of the updraft, all the time allowing for a slight drift."

"I see. Your record-breaking pilots keep doing their scales here at Torrey Pines, their advanced practice pieces in the desert, and then go on a concert tour around the country!"

"That is a good picture of it all right."

Well, here we are, and our two-place Grunau is all assembled, except for the gap cover. We leave that off for the final inspection. The pilot is now going over all connections to see that they are secured and in working order.

At about this time the bright slicks on the water are covered over by the ruffled deep blue that has been moving in from the horizon. The pilot covers the gap between the wing roots, hooks up the tow line and tests the release. Then he climbs into the front cockpit. One of the boys hands him a streamlined, transparent cockpit cover. All the new sailplanes are closed or, at least convertible nowadays. It often makes the difference between flying or just wishing to fly. The ship is ready for a trial hop, and this is the way it is launched:

A 6" diameter pulley is attached to the tow car. Then the tow rope is run thru the pulley and fastened to a stake in the ground. On a signal, the car is accelerated as fast as possible in low gear up to 20 miles per hour. The sailplane hooked to the free end of the rope has to cover twice the distance the car does in the same time. Against a ten mile head wind, the air-speed of the glider reaches 50 miles per hour within a few seconds. The ship, lightly loaded as it is, leaps into the air, climbs steeply for a few seconds, then gradually

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levels off as the angle of the tow rope increases. 200 feet up, and still well back of the cliff, the rope is released and the pilot glides toward the expected lift.

Evidently, there is 'something in the wind' for, as the pilot turns his craft parallel to the edge, he is not coming closer to the horizon. Just ahead of the deep canyon that would break his lift, he banks lightly and turns and turns back, now going toward La Jolla. In another minute or so he turns again. Now he has definitely gained some altitude. Another turn, this time a $\frac{1}{4}$ circle over the breakers prepares him for landing. Then he slips in, tail wind. He alights beautifully on the smooth tow car track, runs right up the take-off runway, locks his landing wheel and comes to a sudden stop at the end of the tow rope, which meanwhile has been laid out for another take-off.

"We'll only get 150 feet with two up, but the wind is increasing, and there might be some thermal action," says the pilot.

"Ah, another club member from *Consolidated*, O.K. take a seat behind me and relax."

Before you realize it, the ship is turned around and you can sit in the comfortable cushioned rear seat under the wing, with plenty of room and ample visibility thru plastic side windows. The beautiful workmanship on the heavily varnished plywood-covered fuselage inspires confidence but, you can no more relax than "fly in the air" as the old folks used to say. You think of that terrific angle of climb as you fasten your seat belt, wondering what happens to these things in a stall. Your pilot signals and up you go. All that you hear is the air blast against fabric and the whistling thru the small openings around the cockpits. You feel yourself pushed up, not pulled, just as your pilot further assures you that the controls are in neutral. As you look out you marvel at the rapidly unfolding panorama, the rugged canyons, the sharp edge of the more than 300-foot vertical cliff, and suddenly a broad, smooth beach directly underneath. The pilot has released, you glide over the beach, turn parallel to the cliffs, as you wonder about that updraft. It is there, alright, for your variometer shows a very slight climb. Then you glance at the field where the runways are now sharply outlined, the highway lined with trees, the rolling hills that reach up the side of conical Black Mountain, and away back the blue Laguna Mountains and Palomar, over which rise the towering Cumulus clouds. Suddenly you feel yourself pushed up. "Here is where we turn. Watch the variometer," says the pilot. You watch the bank indicator as well and notice

the turn is perfect, the ball stays in the middle. "There is usually a convection at this point. Did you notice how we climbed on the turn?" Now you are facing south. The nose of the craft points about 10 degrees more to the west than the flight path which closely follows the contour of the mesa. Looking at the glider port from this angle, makes one really appreciate its excellent location. The cliffs are not only higher here, they are almost vertical and the two flanking canyons diverge from the field to double the length of this natural deflector.

Look! There is the other ship taking off, coming right up to you. She is a beauty with her cream wings, mahogany nacelle, and the tail mounted on a gleaming dural tube. Now you can look right down into the cockpit. The pilot looks up, grinning as he slides under you. This is getting interesting. "Yes," says your own pilot, "The wind is picking up too. We may have a lot of fun." The wind has increased, you can even see an occasional white cap, but the air is smooth as you cruise back and forth.

Was smooth, you mean. Just as you cross that big canyon, you hit a bump . . . no, not a bump, a giant wave. "Yippe! We've hooked a thermal!" says your pilot, and banks sharply. You look out where the canyon, then the mesa, the beach and the ocean spin past your wing tip which seems moving backward in the tight spiral. Gradually you feel pressed into the seat as your pilot calls your attention to the variometer which shows 6 feet per second. "Just a weak one," says your pilot, "They never amount to much on the coast." You carefully keep your eyes off the spinning landscape and look at the climbing altimeter wondering what a 20 feet per sec. desert thermal feels like. Suddenly the ship falls down from under you. You seem to have lost all weight for a moment.

"Too bad, we lost the thermal. No, we didn't drop, we just stopped climbing."

Well, we are too far inland, anyway. You heartily agree, wondering how these supermen can spiral around in thermal after thermal for hours on end, to land hundreds of miles from their starting point, without ill-effects. It is no worse than spending all day in a small fishing boat, rolling and pitching with the power off. "No, I suppose not."

Looking down you find yourself almost over the highway. Over at the field are several more cars, probably some of the other members who have come out to fly. The single seater is darting around almost at the level of the field, sometimes diving thru a canyon, then he slows up and climbs

almost like an elevator . . . the wind must have freshened.

There is no lift back here. You gradually lose the 600 feet you just gained as your pilot skillfully maneuvers toward the end of the 1,500 foot landing runway. A long slip, exaggerated, because you are headed into the wind—then some rough air over the little lake, but you don't mind a trifle like that, now that you are a veteran thermal soarer. You are just a few feet off the ground, gliding down the side of a little valley. You slide up the other side and gently touch. The noisy rumble of the landing is literally quite a comedown after the silent, effortless cavorting around the sky of a few minutes ago. And when you help push the 400 pound sailplane back for another take-off, you fully realize the tremendous power available right out of the free air to anyone who will take the trouble to learn how.

The "Associated Glider Clubs" is growing so rapidly that a second club ship is now under consideration. We are happy to welcome the following *Consolidators* as new members of the Association: McCraight, Palsulich, Wallace, Craig and Kennedy of Engineering, and also Scott Royce (the latter past president and for three years instructor of the glider club at the Univ. of Mich.) Wilber and Ray Parker of Wood Shop, Ed True, Tool Department (formerly with Bolus Sailplanes). Paul Madsen, Matt Wielopolski and Jim Conniry of Machine Shop, Tom Eccles of Hull Department and last but not least Russ Kern, *Consolidated* I. Q. and Philosophy. (Watch his columns soar to new heights!!)

E. L. Minch of Tool Design and Miss Jean Pausek, it was learned, will be married on September 2d. They will honeymoon to Boulder Dam and possibly include the Grand Canyon in their trip.

Born to Mr. and Mrs. Harold Stone of the Hull Dept., little Miss Irene Laurene Stone. Miss Stone weighed in at just 8 pounds and 5 oz. The date of arrival was July 24th. Congratulations are in order.

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UP AND GOING PLACES . . .

OUR twin engined Model 31 flying boat has just about everything in the way of the latest aerodynamic advances and mechanical equipment. It has, for instance, the first two radial engines of 2,000 horsepower to be installed in any airplane, which give the plane efficient performance at high operating levels. Advantages associated with such flying are smoother air, no risk of striking mountains, flight above the highest clouds permitting uninterrupted celestial navigation and ice hazard elimination. One marked advantage of high altitude operation is, of course, speed.

Using 5,000 foot performance as a basis of comparison, the speed of an airplane will increase (without change in power) some 10% at 15,000 feet, 20% at 25,000 feet and nearly 30% at 35,000 feet. The endurance of the model 31 with its large fuel capacity combined with its high rate-of-climb which may be maintained to considerable heights, makes not only possible, but practical, flying for many hours at high altitudes where higher speeds and increased efficiency are realized.

One might well ask what effect flying for long periods at such heights has on the human beings aboard the aircraft. The passengers and crew would have a bad time of it, were it not for the recently developed, highly efficient oxygen and helium-oxygen

inhalation apparatus with which the Model 31 is equipped.

All available data from medical, military and commercial sources indicate that the need for Oxygen becomes apparent above altitudes of 10,000 or 11,000 feet. As the Oxygen content of the air is about 21%, reducing the pressure (as at altitude) reduces the amount of air for a given volume and likewise the amount of Oxygen that a person takes in with a normal rate of breathing. At 12,000 feet, for example, the pressure is reduced so that a person breathes only 64% as much air as at sealevel, and of course only 64% as much Oxygen with it. Expressed in another way, a person at 12,000 feet would still take in air with a 21% Oxygen content, but due to the less dense air breathed, the quantity of Oxygen breathed, when compared with the sealevel 21% would only be 13%.

The effects of a deficiency in Oxygen are insidious and are seldom realized by individual in the earlier stages. Shortness of breath, dizziness and dull headache are warnings which should not go unheeded. Those who are physically and mentally tired or still subject to the effects of recent use of alcohol, are particularly affected by Oxygen deficiency. Even moderate altitudes may be harmful, and it is reported that repeated daily exposure at

altitudes of 12,000 feet for four hour periods, resulted in mental and physical fatigue which persisted and was further manifested by difficulty in mental concentration, by sleepiness and lassitude, lack of initiative and increase in nervous instability.

Fortunately, the ill-effects of Oxygen want (Anoxemia) at altitude, can be avoided as long as the inspired air is sufficiently rich in Oxygen. The basic criterion in regard to the use of Oxygen is not the point at which a pilot can operate without it, but rather the point at which he begins to benefit from its use. Accordingly, one of the major airlines in this country has taken a firm stand that Oxygen must be used by the crew at any altitudes above 10,000 feet, and the U. S. Navy "strongly advises the use of Oxygen at all times while participating in flights above 15,000 feet and that Oxygen be used when remaining at an altitude above 12,000 feet for periods of two hours or longer duration, and when participating in flights below 12,000 feet but at or in excess of 10,000 feet for periods of six hours or longer."

Regardless of altitudes, inhaled atmospheric air is composed of approximately 79% Nitrogen, 21% Oxygen and .04% Carbon Dioxide plus the balance in small quantities of other gases.

Left: Chief Test Pilot "Bill" Wheatley at the controls of the Model 31 shows how the new masks are worn, indicates the flowmeters with his left hand and rests his right hand on the regulating valve. Center, the four cylinders that supply the masks, contain Oxygen and Oxygen-Helium mixture under high pressure. The hand on top of the tank at the left indicates their size. Right, the valve manifold, pressure gauge and first stage pressure regulator.



Normal exhaled air still contains 79% Nitrogen, but the Oxygen is reduced to about 16% and the Carbon Dioxide is increased to about 4.9%. It is the Carbon Dioxide in the lungs that stimulates breathing; when a person exerts himself the amount of Carbon Dioxide increases and this increases his rate of breathing. It is desirable to "rebreath" a portion of this gas as well as most of the exhaled Oxygen which is unused and represents approximately $\frac{3}{4}$ of the amount inhaled. It is by making use of this "rebreathing" principle that the Inhalation Apparatus used on the experimental Model 31 is able to add Oxygen to the inspired air efficiently.

The older form of Oxygen breathing apparatus, which is fairly well known, consisted of a cylinder of Oxygen, a regulator, and a rubber tube. The tube was placed in the mouth and the Oxygen turned on at the desired rate. Breathing was then accomplished thru the mouth. This system, simple though it is, is not a very efficient means of taking Oxygen, since the Oxygen continues to flow and is lost when exhaling.

The new apparatus which is far more efficient, employs a mask especially designed for the use of Oxygen. It is a surprisingly simple and efficient device of light weight, and is called a "B-L-B" mask. It derives its name from the initials of the three doctors who were responsible for its design and development: Dr. Walter Boothby and Dr. W. Randolph Lovelace II, of the famed Mayo Clinic, and Dr. A. H. Bulbulian. A nose-piece of soft rubber completely seals around the nose when a single strap back of the head is adjusted properly. Being quite soft, it is not necessary to hold the nose-piece tight against the face, but only with light pressure in order to obtain a complete seal. Breathing is accomplished in the normal manner, and very little more than normal breathing effort is required to operate the device. In fact it has been used with success by patients in the hospital whose condition required their receiving additional Oxygen. The speech of a wearer is not affected, since the device in no way obstructs the oral passages.

On the model 31 the equipment consists of three cylinders containing gaseous Oxygen and one cylinder of a mixture of 80% Helium and 20% Oxygen, all under high pressure. High pressure tubing is used to connect these cylinders to a manifold fitted with four valves which control the selection of the cylinder desired. On the end of this manifold is a pressure gage and a first-stage regulator, from which tubing conducts the gas under reduced pressure to the final-stage regulator lo-



"Run, little chilluns, run!! . . ." no, wait a minute, that's only Pete Carleson and Jack Stuck of engineering trying out the new oxygen masks. Jack Stuck, incidentally, was aboard on several of the flights of the Northwestern Airline's airplane used by the doctors in testing of this new type gear.

cated where it can be readily adjusted by either of the pilots or the flight engineer. From this regulator the gas passes thru a flowmeter to the pilot's B-L-B nasal mask. There are seven other outlets to which the crew members may attach their masks and receive gas under the same pressure as does the pilot. Oxygen enters through a tube terminating in the lower end of the reservoir rebreathing bag. From this bag it passes through the connecting and regulating device into the nose chamber and is inhaled by the wearer. The exhaled gases pass downward into the rebreathing bag. When the bag becomes distended with the mixture of expired air and incoming gas, the slight pressure then produced permits the excess to escape through the expiratory valve. The expired air thus escaping will be from the latter part of the expiration, and will contain the most Carbon Dioxide and the least Oxygen. Thus the most undesired part of the expired air passes out into the atmosphere, and that part of the expired air which passes into the bag contains the most Oxygen and is available for rebreathing. On the next inhalation, the mixed Oxygen and expired gases combine with atmospheric air entering thru portholes and this mixture rich in Oxygen is drawn into the nose chamber and inhaled by the wearer.

The Oxygen is normally turned on soon after passing the 10,000 foot level, the final stage regulator is re-adjusted as necessary so that ample Oxygen for the altitude at which the plane is flying is being

delivered as testified to by the flowmeter reading, and everyone breathes thru his nose while wearing his B-L-B mask.

On descending, the Oxygen is left on until below 16,000 feet when the Oxygen is shut off. The mixture of 80% Helium and 20% Oxygen is then turned on, and this breathed thru the same mask until the plane has completed its descent. While the eustachian tubes, or passages within the head, usually stay open sufficiently to equalize inner and outer ear pressures on a climb, these tubes frequently plug up on descent preventing the pressures from equalizing, causing discomfort and sometimes severe pain and damage to the ears. The highly diffusible Helium (1/7th the weight of Nitrogen) spreads swiftly thru the passages from the nose to the ears and keeps the pressure reasonably even, and eliminates this problem of high altitudes flying.

The breathing apparatus described above is but one of the many highly efficient recent developments which will be found on the Model 31. Without this equipment, the long range, high speed, and ability to continue above weather that would perhaps stop the flight if the plane had to operate at lower levels, would be adversely affected. Three cheers, therefore, to Doctors Boothby, Lovelace and Bulbulian for their contribution!

—Curtiss Fly Leaf.

Asked the meaning of "Dressed Lumber" a western Kansas editor replied, "Charlie McCarthy." —Curtiss Fly Leaf.

WOOD CHIPS

By J. E. Hodgson

THE wood shop acquired an asset in the world of sports, in the person of John Woodhead, Sr., swimmer, who, at Long Beach, August 6th, won the 1 mile rough water swim. On Sunday, August 20th he competed in the veteran's 1½ mile rough water event at La Jolla. Mr. Woodhead, 58-year-old father of Johnny Woodhead of the Tank Dept. deplores the fact that he cannot find anyone in the plant to give him a try-out. He went into the Long Beach event without any previous training.

Thanks to the influence of the younger men, the Wood Shop ball team finally got going. They lost all games in the first round, but won from Production and Hull in the first two games of the second round. They tell me that "Tip" Weber would be a swell first baseman if he had a net instead of a glove. The boys were startled on the arrival of Wilber Owen on the lot in a pair of shiny red pants. They were very much gratified to find in him a catcher "par excellence." It looks like the team is really going to town, this half.

To the many visitors to the "Old Globe" theatre in Balboa Park, it may surprise you to know that a wood shop man, "Rosie" Rosenthal, is technical director. He is

thinking of going into business, as, in one evening alone, after the play the janitors swept up a bushel of peanuts. Even pop bottles occasionally find their way onto the stage.

Who is the Scottish lead man in the Wood Shop who was being so polite to a lady on Adams Ave. that he walked into a telephone pole, doing considerable damage (to the pole?) If you know, don't tell anybody. If you want to know, ask Mrs. Bill Stutzke.

Poor Bill Hardacre! He is like a man driven from home (or sumpin') since Jean Bitzer left Wood Shop. We all know Jean was Bob's mentor and guide on world affairs and politics, in fact, quite heated discussions and debates often occurred between them, regarding home and European affairs of state. Alas! the conference chamber (lavatory to you) seems desolate without you, Jean.

P. S.

"Wood Chips" Ernie Hodgson tells us San Diego was unknowingly honored on August 12 and 13 by the visit (incognito) of Will Hayes, commentator on the Amos and Andy radio program. Mr. Hayes, who is an enthusiastic lawn bowler, played both days on the San Diego L.B.C. greens, coming from Del Mar, where he was visiting, especially to play. Ernie adds that he is a swell fellow to meet, and a good sport to play with.



Harold Strawn of Lofting has mastered the art of flying, having recently received his private pilot's license. Now he's taken to making little Gas powered model flying craft. His entry in the San Diego Aeroneers' monthly meet on July 30th came away with second prize. First prize was won by E. J. Brown, formerly of the Wing Department. Strawn says there is considerable interest in starting a Corsair Model Club . . . suggests that interested parties contact himself or Bill Gilchrist.



ANSWERS

1. Wright Field.
2. \$102,798,000.
3. 17,264 feet.
4. Col. Frederic E. Humphreys and Col. Frank P. Lahm, according to Wright Bros. Records.
5. Curtiss-Wright Corp.
6. Slip.
7. Roach.
8. Ceiling.
9. 2,326.
10. Consolidated.



The popularity of the small airplane seems to be increasing by leaps and bounds.

PRODUCTION MINUTES

By "Brad" Bradshaw

HERE'S that man again who is lately being referred to as "Social Enemy No. One." Just limped by Freddie Rosso, "Little Napoleon" of raw material stores and he says to me, "If it's in the *Consolidator*, I'll break your other leg." Just because his wife has been East on a vacation he expected some publicity. Besides he, being a pal of mine I never told about the difficulties that he, Tom Jones, Bob Lamont, and George Wire encountered recently when attempting to provide oats for some undernourished "bangtails" at Santa Anita thru a local "bookie" as I just classed it as a noble humanitarian deed. Why do people keep saying "Remember what happened to Winchell?" or humoring "Get out of Town Before It's Too Late?"

Eavesdropping around during the month we learned that Jim Eisman returned a week late from his vacation because he refused to drive thru the green lights. Mike Keenan, another Navy Inspector returned from his vacation with enough bandage around his "dome" to cover a trailing edge. Mike said a barrel fell on him but didn't say if it was the one used "when they play the Polka." George Wire lost his pay check a few weeks back and four horses starved to death at Caliente. Chief Mulroy with a part in each hand and rush tags in every pocket is hitting that "Production Stride" again. The worst swindler of the month was the barber who made Jim Wilkinson pay for a hair cut. George Young, who admits training some of the country's leading aircraft "big shots" warns Ted Anderson to bring more parts if he expects to be a Vice President in the future. Larry Boeing took the top spot from Craig Clark as Number One "Ferdinand" when his "gorgeous begonias" won a red ribbon at the La Mesa "Festival De Las Flores." Howard Bell left on his vacation pushing a trailer either because he could not perfect a hitch or his wife won't trust him. Someone did a nasty trick to Mason, Sheet Rockwell expert, when they drilled holes right through all the Rockwell marks of those 500 clips. Harvey Muck claims that unless he has a template in each hand and a form block in his pocket he is not properly balanced. The Hull Department ball team displayed some real sportsmanship by letting the Wing team play off a forfeited game. Johnny Penfield doesn't worry about a workman's mental processes as long as he has "arms and legs." Milt Tayler is trying to persuade Purchasing into buying "fuzzless" towels for the wash room. "Kingfish"



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"Army" Armstrong has the bandage off his famous "right" again, but is not so sure about his future in softball. "It's a lot of fun" says Army "but mighty tough on de mits."

Another new suit of clothes with a familiar face protruding from the "superstructure" is back to challenge the title of "Fancy Pants" which has been bestowed upon our very eligible bachelor friend, Bill Liddle, by "Mack" McGinnis, all around inspector of no mean ability. We refer to Danny Clemson, who is doing a good job of dispatching for the Hotchkiss clan. To prove our point, we quote him, "Say, I gave away better clothes to the Hollywood playboys, than Liddle owns." Of course, when Bill dazzles him with those "robin egg blues," it may put Dan to scouring the haberdasheries.

Ed Stewart, Chief Storekeeper, who does a fine job of keeping the finished parts stockroom one of the most efficient departments in the shop, although he is occasionally referred to as the "worrywart," is off to New York to see the fair. We asked him all about his plans and received nine shakes of his head and nine "Yeps." Anyway, Ed's going alone so his plans are none of our business, as I just glanced through the "men only" magazine and saw some pictures of the beauties at the Aquacade, Oh Boy! But Ed don't telegram about any parts as Walt Hassler is off to Catalina for a week of the same (except his wife is along) and we have to keep him posted about what's going on in the Hull or his vacation would be ruined. I know it's "hooley" but Walt's the senior dispatcher, so what's "junior" to do?

While some sedate society scalawags sensitive to sandy sandwiches, soda pop, and seaweed shamefully sneaked somewhere to safely sit and sip secluded in a sanitary saloon, ("Aw, sassafras,") others of *Consolidated's* charmed circle were enjoying the year's most sensational "sand social" (beach party to you dry landers) at La Jolla a few nights back.

Ted Anderson graciously served as reception committee and (bowing in all directions) introduced each guest and for once Ted did more talking than Kay, the wife. The sensation he offered each guest proved to be a cigarette. Dan Miller put forth his best efforts as "master of ceremonies" until Lloyd Bender tackled him as he entered the "stretch" with his favorite racing story. The party felt they were "gyped" with the charcoal purchase when the combined expulsion of wind from Generas, Mussen, Kellogg and Sieck failed to ignite it as that is no mere breeze. When Dan Clemson and Bill Wiley put in an appearance, the fellows all moved

closer to their female partners, either because the fire was low or to keep Dan and Bill honest. I admired the way Johnny Buchan and Jess Brown held hands with their wives after all those years of married life, but this turned out to be a "mirage." They were holding the wives' hands to keep from having sand thrown in their eyes when admiring a pretty feminine figure. It was a lot of fun but when you spill a can of beer in the sand, there's no chance to lap it up.

"There'll Be Some Changes Made" was only a song until Perry Ogden decided to do something about it and consequently has lately made more shifts in Planning Personnel than the "bull gang" has with the lofted tables. Jess "Mr. Broon" Brown is now "superintendent" of documents, process cards and stuff or the fellow you hop on when anything is filed wrong. Joe Maloney, who did a swell job of what Jess is going to do is now "leadman" of the blueprints where he can sit for five minutes at a time without getting up. Genial Bert Gimber is "right arm" to Roy Coykendall, who can now rest his for the softball games. Best however, is worrying Gracie Koenig no little with that burning cigarette behind his ear. It's no use, Gracie, it will never catch his "wool" on fire as he's a "yogi" or something. Kirby Higdon has a mighty big desk for a little man and is doing something important. Maybe guarding the boundary line from another Tool Design "snatch." Walter Hassler who always insists on "nothing but the Best" for Hotchkiss and the Hull, got it o.k. in Shelby. Best, another dispatcher, Craig Clark, got two new dispatchers for the Wing, that should keep Herb Ezard happy for a spell. They were: Gordon Browne former clerk and Tod Carter who was one of the powers behind the "S.T.S. (Stewart Transportation Service). On his birthday, Ted Anderson received a gorgeous pair of red and tan shorts and a green dispatcher, Ed Freakley. Ted says the shorts are sensational but Freakley will have to prove himself. Bill Fleet developed his final experimental ship and has now gone to "Accounting" to see what he can do for the betterment of that department. Luppke has replaced Bill and McManus in turn has taken over Luppke's former duties. "Mac" on his "hiboy" in the Tank is using the "wigwag" code to Communicate with Ben Kiegle in Welding to save unnecessary steps. That army training sure comes in handy. Remember Perry, to hire dispatchers who are tall enough for the "hiboys," as Eddie Generas gets splinters in his chin each time he makes out a report.

Frank O'Connor, self styled strategist

of the rampant Purchasing nine, who claims the brain is mightier than the bat, even if Al Nelson is doing the swinging, is dissatisfied, over the season's play because he can't find a legitimate protest except against his own team. There's no percentage to that and "Red" Basile, crafty skipper of Finals "Gas house gang" is vocalizing Frank right out of the top spot of "Chief protestor."

Just because Bill Wiley has returned to the plant and is assisting Eddie Generas, hustling Final dispatcher, is no reason the latter's worries are lessened. Says Ed, "When I learned we had a big Army contract, I walked out to tell the gang and met those three 'dispatcher nightmares,' Jim Mussen, Jim Burney and Dick Maving and was greeted with 'Well, where's the parts?' Besides," continued Ed, "it will be some time before Wiley works enough of that 'Dr. Pepper' fat off him to be very useful and stops worrying about what Sarabelle is doing while he's at work." By that time, those other eleven hairs may be gone from Eddie's pate.

Van Doren, Chief of Tool Design has gone native and acquired himself a ranch and two horses. This "Rancho Van Dorio" is in the wide open spaces of Chula Vista and according to Van is the real stuff. Anyway, his spurs will serve well for keeping his feet on the desk. If Van had the oats Al Ambrose has bought for the "nags" during the year, his feed bill worries would be over.

Les "Lottie" Matusek may have stopped playing ball to keep that batting average from dropping below .043 percent, but seems to be hitting close to the top in the "I want a wife League." We are seeing quite a lot of that good-looking gal these days, Les, and if you aren't going to marry her, don't keep her chained to your automobile. Now come clean, Is You? or Ain't You? Don't worry as you should be able to do housework as well as Rasmussen, even if he does have his parents' restaurant to practice in.

The aircraft engine operates at a high percentage of its full power output as a normal condition, while the automobile engine operates on a low percentage.

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THE TENNIS TATTLE

By Matt Wielopolski

BEGINNING with A to Z and Top to Bottom, here is the low-down from our tennis ladder. Did you know that:

. . . to date, there have been 99 matches scheduled, and only 14 defaults.

. . . Lyoko is still the only tenniseer who has won every challenged match he has played.

. . . the Brady-Speed match was played in exactly 2 hours, 22 minutes and 13 seconds. Incidentally, Speed won slowly by scores of 15-13 and 9-7. The longest competitive match on record.

. . . Passenheim remains our record (racket) breaker . . . yes, siree: thus far he has broken and busted every (13) type of (tennis) racket in 13 months!!!

. . . Brady has played more (11) matches than any other ladder lad, whereas Kellogg has yet a match to play on the ladder.

. . . The McGowen-Wielopolski match was the shortest in time, score and play, McGowen winning by 6-0 and 6-1 in exactly 33 minutes from start to finish.

. . . Witherall, our outstanding national ranking player was teamed up with Brownstein, So. Cal. tennis champ in the La Jolla tourney. Although these boys lost in the Finals Doubles, they each received a beautiful trophy.

. . . which reminds me, that now is as fine a time as any to remind you all of our forthcoming Doubles Contest to be played the last three week-ends of September. See the committee for details.

. . . interesting match: Ehlert-Hogue, 9-7 and 7-5 . . . our champ wins Lyoko-Carter, 6-1, 3-6, 6-2 . . . keen competition Alienelli-Miller, 2-6, 6-4 and 6-3.

. . . Hagman proves to be a fighter even when he's down . . . from 66th on the ladder July 16th, he jumped to 17th spot by August 7th.

. . . watch out boys . . . here I come! From 9th rung to 19th rung in less than 29 days. By and by I'll be down to 69th rung (gong). Whoever said that "last is best" might be right. Will let you know, later . . . Matt.



"DOUBLES TOURNAMENT"

All players interested in a Doubles Tournament to be played on Saturday afternoons, starting 9 September, please furnish your name to a Committee member before 1 September.

Pairings will be made from the Tennis Ladder as it stands on 5 September in the following manner: No. 1 paired with No. 3, No. 2 with No. 4, No. 5 with No. 7, etc.

The first eight players will be seeded according to the ladder. The opponents for the four top teams will be ascertained by drawing names from a hat, i.e., first team drawn plays top team; 2nd team plays next to top team, etc.

After the above procedure has been settled, the remaining teams will be matched by a drawing.

For the second and succeeding rounds of play, the teams surviving the first round will be set up on a draw sheet.

Please do not sign up for this tournament unless you are fairly positive you will be able to play at the time scheduled, as the lack of one player will spoil the match for three others.

The Committee,
Vernon,
Wielopolski,
Lockwood.



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Keep this
REAL
PICK-UP
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on ice

HULLabaloo

By Al Leonard

JOHNNY "SCOTTY" DOIG who left to be a pain in the neck of the Hull Department golfers, won his second Hull golf championship. Gordon Shoop, the genial loser, said Scotty would never have won the championship if his (Shoop's) beer had not given out. Shoop carries two golf bags; one he fills up with bottles of beer and in the other he carries such unimportant things as golf balls and clubs. Some people, who came too late to see the match start, picked up the trail by following the string of empty bottles. Bud Shimmin, another Hull golf bug, was seen trying to cut down a tree with his brassie. The tree won, and now Bud is in the market for a new brassie.

Nick Teuvesky's Poison Gulch hideout claimed its first victim last week when Glenn Hotchkiss was laid low with a bad case of oak poisoning. Nick, who like Al Clark wants to get away from it all and be alone with nature, will certainly be alone from now on as everyone says they will not go back to that poison-infested country.

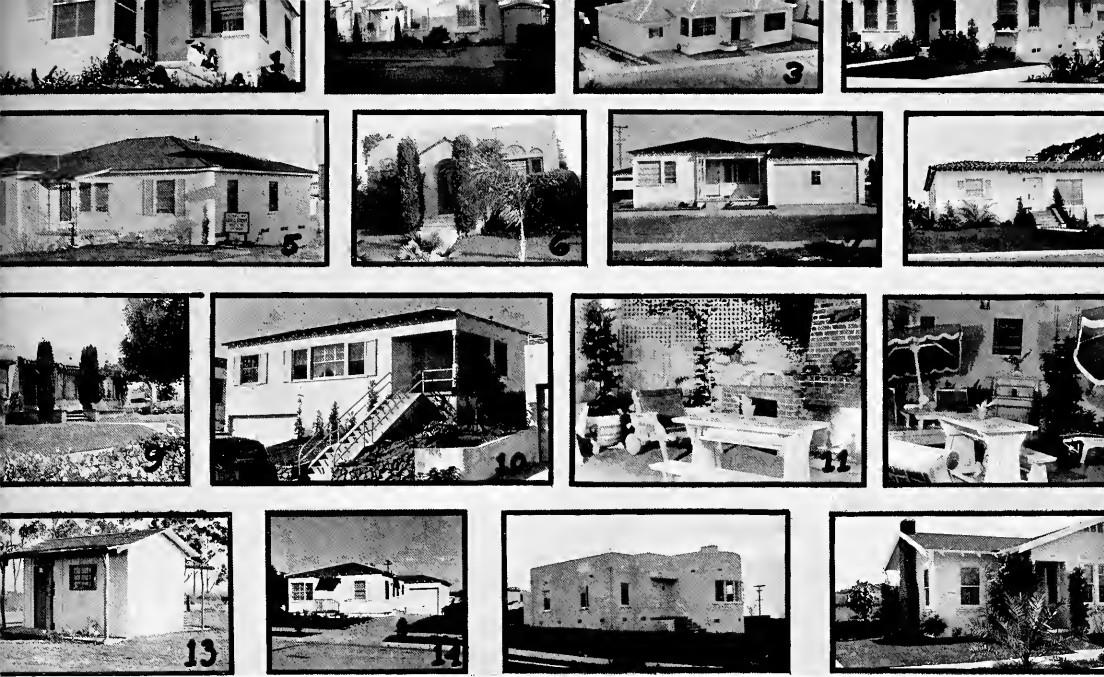
The Hull Department was well represented at the Rod and Reel Fish Fry. Clarence Halsey and Ted "Polka" Pawlik stole the honors with their Polka dancing. Geo. Galley tried to bring the beer drinking championship to the Hulls, but was beaten by a quart when Harry Von Meeden of Larry Boeing's squirrel cage downed his beer in five gulps. The attendance would no doubt have been greater if Yap Yap Hapman hadn't told everyone the fish for the fish fry was a large shark that was caught the day before.

Hank Lajoi, the Hull Department's rotund fish's friend and advisor, was heard complaining about some tropical fish that he had ordered from an eastern firm. Of 400 Hank ordered, 64 died in transit. Hank wrote them and they sent 64 replacements, half of which arrived in a dying condition. Hank was nearly heart broken. We suggest he invent a little iron lung for his sick little fishes.

Willie Roemer, the Kactus King, built a stream-lined turkey house one week-end. He and his helper celebrated each board that was put into place with a bottle of beer. As there were 196 boards, the turkey house was finished a howling success.



"Bathing alone will not preserve one's health," says a well-known physician. Nevertheless, we shall continue to bathe alone.



MORE HOMES . . .

1. Home of R. L. Sattro of Final Assembly, completed July 1st . . . five rooms and "the best view in the city!"

2. Home bought by Mr. and Mrs. E. Coloman, and remodeled in 1937. W. Wright was the builder.

3. The new house built for Mr. and Mrs. Fred Harger in Reynard Hills. They moved in July 1st. Harger liked and added this bit of verse:

HOUSE BLESSING

Before this house, O Lord, station an angel of light.
Give us Thy protection through the lonely night.
Bless those who in these rooms abide,
And every friend who steps inside.

Guard Thou our home and us.

4. Home of O. K. Roeckel of the Welding Dept. His home is situated in El Cerrito Heights.

5. Home of Geo. B. Clayton, Jr., Engineering Dept. Finished June 19, 1939.

6. Home of P. A. Carlson of Engineering.

7. "Clark's Borough," bought July 1st by D. B. Clark. Located in Talmadge Park.

8. Home of another engineer . . . J. W. Larson, Point Loma.

9. This is "Brown's Castle" . . . owned by C. E. Brown of Welding. It's located in Pacific Beach.

10. Home of Mr. and Mrs. Hal. R. Linderfelt and Sons, of Engineering.

11 and 12. Leo Bourdon, head of the Welding Department, has something a little different in his idea of a fully comfortable home. Leo built his house, but in

the meantime the Chamber of Commerce completely sold him on the climate . . . so he made an addition. This is in the form of an outdoor living room. Leo designed the whole arrangement, had the combined fireplace and outdoor grill made, but built the walls, latticework and all his own furniture. Half of the outdoor living room is closed over with latticework. Leo, of course, did his own landscaping work to fit it in nicely. Needless to say, the arrangement has caused considerable comment by all who have seen it.

13. "El Rancho Del Viento" built Sunday afternoons and for \$80.00. Owned by Dick Zerbe of Engineering. Located on Torrey Pines Mesa . . . as he says, "Just a stone's throw from Bing Crosby's and Doug. Fairbanks' places . . . if you can throw far enough!"

14. Another Welder . . . home of Mr. and Mrs. H. E. Robertson in Ocean Beach. Two bedrooms, was purchased April 14, 1939.

15. Recently completed home of Ralph Follick of Engineering.

It's located in Ocean Beach and moving in took place March 18th. Landscaping is yet to be done.

16. Home of Jack Benkner, located in Ocean Beach.

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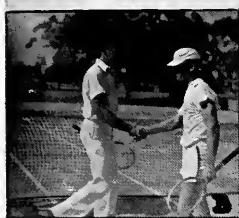
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FROM THE ALBUM

A. McGown, Gilchrist and Loyko with the players' better halves at the playoff of the tennis championship.

B. On the left, Loyko of Final Assembly, winner of the singles tennis tournament played last month, and McGown of Experimental, runner up.

C. Mr. and Mrs. Michael Alianelli of Sheet Metal Department . . . May all your troubles be little ones. No. 1716.

D. The picture shows Bob Hardacre's idea of how to go fishing. He has some-

thing, says Ernie Hodgson, for he goes fishing and never hurts a fish.

E. Mr. and Mrs. Kinney . . . they didn't know we secured this photo . . . just married.

F. Seeing is believing when it comes to fish stories, and by the size of the above fish. We know it isn't any fish story when Dick Schwartz comes to work in the Machine Shop on a Monday morning and says he harpooned a broadbill over the week-end. The broadbill pictured, was harpooned by Dick, August 6, 1939, and tipped the scales at 550 pounds.

Dick is no novice when it comes to spearing broadbills, as in the last 3 years he has caught over 50, and during that time he is proud of the fact that he has missed only two attempts at spearing. In other words he is the original "Dead Eye Dick." The harpoon used is made from brass with a barb on it and a 14-foot detachable handle is used. Broadbill must be speared just 6 to 8 inches behind the dorsal fin with sufficient strength to enable the barb to pass thru from the back to the stomach. 1,000 feet of rope is attached to the barb, and attached to two five-gallon barrels. The drag of the barrels on the line wears out the fish which finally comes to the surface and is landed.

G. John Woodhead, Sr. . . . a champ swimmer at 58 . . . see "Wood Chips" for details.

Busman's Holiday Benefits

ONE way of enjoying life which is often the subject of much joking, is to take a "Busman's Holiday," or to do in your spare time something similar to that by which you earn your bread and butter. If on top of finding it a relaxation it is helping your business indirectly . . . then you have something. Hugh Nicholson, inspector of Final Assembly, is doing just that, has been doing it for some time, and is enjoying it.

Nicholson is an Army-trained flyer. He graduated from Kelly Field in Pursuit Flying. In 1929 he was on active duty as a 2nd Lieut. with the 96th Bombardment Squadron, when the activities of *Consolidated* became a bit too enticing. So he terminated his active duty and joined as a flying instructor with the National Flying Schools, which was a subsidiary of *Consolidated*. When the flying schools ceased to be active, Nicholson worked with Bill Wheatley as a flight test pilot. The possibilities of light airplane manufacture became a subject in which he found considerable enthusiasm, so he started off on his own to form a manufacturing company to turn out a small, lightly powered high wing monoplane. Just as things were getting under way, along came the depression, and as Nicholson smilingly sums up the deceasing of his new and struggling company, "So I had to go back to work." As though designing, building and testing a new design were not work.

He came back to *Consolidated* and became a member of the Inspection Department. Then once more he got into the habit of his "Busman's Holiday." He began taking students up for flight instruction. Because he finds in it a relaxation he otherwise misses, he has instructed many persons in the art of navigating the air about an airport in their first stages of flying. Many of these, most naturally have been *Consolidators*, or members of their families.

Nicholson, it will be remembered, test-hopped two of the "Flagships" designed by C. C. Flage and built by members of *Consolidated*. The first of these was the little, exceptionally speedy racing ship with the 90 h.p. engine made especially for the Cleveland races. The other was the more recent "Minx" which is the single seater with a 50 h.p. engine which may frequently be seen in the air. Both of these were written up in the *Consolidator* some time ago.

Of late the number of *Consolidators* who are contributing to Nicholson's busman's holiday, and learning to fly thereby,

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DRIFTING THRU DRAFTING

By JEFF BOULEY

Frisco has its Sally Rand
Whose dance with fans is something grand;
Old N. Y. has Gypsy Rose Lee
Whose shocking ways make blind men see;
But caution, lest it reach your parson—
San Diego has Jack Larson!

THESE balmy nights that San Diego boasts are certainly a boon to Jack Larson and his ilk in view of what happened the other evening. We have no idea just how often these things occur, but here is the story: Jack's wife is away on an extended visit so that the care of the Larson dwelling is entirely in Jack's hands these days. On the night in question Jack had come home and performed all the chores in the best Utah fashion and he was taking a refreshing shower before retiring when he remembered that he had forgotten to turn off the lawn sprinkler. So out he dashed and the door clicked shut behind him, leaving our shivering hero locked out of the house with nary as much as a bubble to hide behind. And at this point, gentle readers, our story ends. Did Jack get back in the house? Does he now carry an extra key around his neck? Did he have to do some fast explaining to prowler officers? The solution to this mystery will no doubt be furnished by Jack upon receipt of a self-addressed envelope and a dollar bill.

In a superb Finnish finish, Oscar Wehmanen last month scattered the stogies in honor of the arrival of a young son. His wife said he could name the boy anything he chose, as long as it was "Oscar". And so sonny boy is Oscar Anton. Basil Isham also contributed to the vital statistics column during this period with a male order, who surprisingly was named Richard Basil in-

has increased considerably. These long summer days allow for a comfortable bit of flying in the evenings. Saturdays and Sundays too are utilized in this manner quite often. Nicholson does his flying out at the Speer Airport on Barnett Ave.

The two questions which come to mind are: Just why does he do it, and Does he get paid for it? "Yes, I gain a little from the instruction," Nicholson answers, "But most important, it supplies me with access to several types of ships, and the pleasure of teaching others to handle airplanes, and I gain the relaxation I like after a day at the plant." Thus, by satisfying his needs for a bit of recreation by giving flying instruction, his "Busman's Holiday" pays for itself and in training pilots who perhaps will someday be flying the airplanes he works on during the day.

stead of Nikki or Ivan. So exhausted from congratulatory handshakes Basil was extending his left hand by afternoon. Park Stacy stole away for a few days recently and when he returned he was registered in our Knots and Tots department, with a wife to obey. The power plant group are calling this year the "Moerschel Centennial" because of Bud's approaching granddaddyhood, and they have had their lead ducks painted baby blue in honor of the occasion.

After witnessing Bernie Sheahan deftly lead a stray mongrel out of the drafting room the other morning, we are forced to the conclusion that Engineers must be leading a dog's life these days when the watchmen apparently cannot distinguish between them and the real canine. We are more inclined to believe this since we heard about Gene Holston, who was vainly trying to descend in the elevator the other day. Repeatedly he punched the button but it did no good and the door would spring open again. It was apparently a clear case of frustration to Gene until one of the Weights boys came over and reminded him to punch the "1" button instead of the "3".

Being interested in houses under construction we stole away one Sunday to the imposing edifice now being erected at the expense of one Bill Schurr. But, lo and behold, when we arrived on the scene so many of the engineering department were present that we practically had to show our engineering badge to get into the place. The house situation has Bill pretty well in hand, for the other day in response to a request for a padlock, he brought around several beautiful little locks with the keys securely attached to them with metal chains. Very, very handy. He should show them to Larson.

At last some of the remarks made in this column are beginning to bear fruit, or at least fish. On various occasions we have made disparaging remarks concerning the fishing ability of those two anglers, Hank Growald and Etienne Dormoy.

Somewhat scorched by these aspersions, it was only natural that they should bring a sample of their first catch to the doorstep of this columnist, and the other day we returned home from our Sunday sermon to be met by the solemn stare of a fresh barracuda. To prove their prowess beyond all doubt the two fishermen repeated the donation a week later. So we pull in our neck, but we are now trying to think of someone to accuse of being a punk deer hunter.

While there is no question that a motorist should take an active interest in the building of good roads, it is not at all necessary that he dive through the windshield and smooth them down with the back of his neck. . . . Although in the long run there is nothing like a good automobile accident to make you forget your other troubles.

Passing thru a military hospital, a distinguished surgeon noticed a private in one of the regiments who had been terribly injured. To the orderly the surgeon said, "That's a bad case. What are you going to do with him?"

"He's going back, sir," replied the orderly.

"Going back?" asked the surprised surgeon.

"Yeah," said the orderly. "He thinks he knows who done it." —Curtiss Fly Leaf.

The son of a well-known aircraft worker, a lad of very refined taste, so detested bad language that every time he heard a naughty word it made the cold chills run down his spine. He was frozen to death last week when his father mashed a finger in the car door.

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ANNOUNCE

Consolidated Aircraft League starts Friday, Oct. 6th, 8:30 P. M.

Consolidated Engineers League starts Tues., Oct. 3rd, 6:30 P. M.

Sun Tournament, Sept. 2-26.



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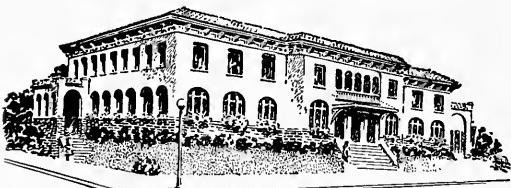
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BOWLING

By H. K. Clay

TEN keglers from *Consolidated* have been participating all Summer long in the 825 league which has been running at the Sunshine Alleys since last May. "Father" T. J. Coughlin, together with Irving Craig, Ed Hanzlik, Russell Wright and Al Ballard make up the quintet fighting for kegling honors under the J. Jessop & Sons banner. The Ben Townes Jewelers is comprised of Chauncey Morton, Ted Pawlicki, Joe Wilkinson, Ben Duffy and Harold Hauptman. The latter team is lower on the ladder of standing than the Jessop team but they had their revenge when the two teams met. They smothered the Jessop group by a clean-cut one-sided victory. This in itself offered plenty of consolation to the Townesmen.

Major E. N. Gott, vice-president of *Consolidated*, has joined forces with the sports staff of the San Diego Sun in the staging of their 8th annual bowling festival at the Sunshine Alleys. The Major has proffered a handsome trophy which will be one of the major prizes of the tourney. It consists of a bowler in action surmounted upon a bronze base and stands about 16 inches high. It is hoped that the trophy will be won by a *Consolidated* entrant.

Echoes of the big bowling party staged by *Consolidated* keglers at the close of the bowling season last May still are to be heard around the Sunshine Alleys. Everybody had a swell evening and some of the jokes of Major Fleet and Bill Gilchrist are being retold with gusto. According to J. B. Coker of the Sunshine Alleys it was the best bowling party ever staged in San Diego.

Ed Hanzlik and Carl Heim are two *Consolidated* keglers who will make a bid for honors in the annual championships staged by the San Diego Sun in September. Heim, it will be remembered was one of the

stars of the Tribune's 1st Head Pin tourney and Ed Hanzlik is one of *Consolidated*'s coming bowlers. Both men are expected to make the headlines soon.

There is considerable talk about an inter-aircraft league to settle the oft disputed championship of the airmen. Ryan has long had an industrial league functioning and now comes the news that Solar opened their newly formed industrial league the latter part of last month. *Consolidated* can put a strong team in the field and ought to have but little difficulty in taking the measure of their proposed rivals.

The Sunshine Alleys has reserved Fridays at 8:30 p.m. for the *Consolidated* league. The league is to be inaugurated October 6th with appropriate ceremonies. This will be the fourth consecutive season for *Consolidated* keglers and many topplers boast that they have been participating since it started. A. H. Kimble, Irving Craig, Ben Duffy, and Carl Heim are among those competing in the original sessions.



COUGHLIN'S COUGHINS

The Engineers Monthly Golf Tournament was held at the Rancho Santa Fe Golf Course on Sunday, August 20, 1939, and was a grand success.

Listed below is the list of the winners in the different flights:

1ST FLIGHT

1st Low Net—Moe	69
2nd Low Net—Hemphill	72
Low Gross—Meer	84
Low Putts—Sheahan	27

2ND FLIGHT

1st Low Net—Robbins	67
2nd Low Net—Gandee	69
3rd Low Net—MacDougal	69
Low Gross—Jewell	96
Loyko	96
Low Putts—Haywood	30

3RD FLIGHT

1st Low Net—Heim	68
2nd Low Net—Rohn	76
Low Gross—Rosenbaum	107
Ranahan	107
Low Putts—McCabe	32
Edenfield	32

4TH FLIGHT

1st Low Net—B. Craig	71
2nd Low Net—Hake	76
Low Gross—Kimble	126
Low Putts—Halsey	35

The next Engineers Golf Tournament will be held at the Chula Vista Golf Course and the date will be announced later.

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A tramp stopped at the kitchen of a farm house and asked for something to eat.

"If you'll go out in the woodshed," the farmer's wife told him, "and split up the logs you find there, I'll give you a meal."

In a surprisingly short time the tramp returned: but an inspection of the wood shed by the good wife showed all the logs carefully split except one knotty old stump. Well satisfied she spread a generous meal before him, and as he ate, she said, "I do wish you'd tell me how you split those logs so quickly and so easily."

"Why madam, I simply stood beside them and told them funny stories, and they split themselves."

In the middle of the night, there was a great commotion in the woodshed, and on rushing to investigate, the amazing dis-

covery was made that the gnarled, knotty old stump had split itself into a thousand pieces.

It was a piece of English Walnut.
—Douglas Airview.

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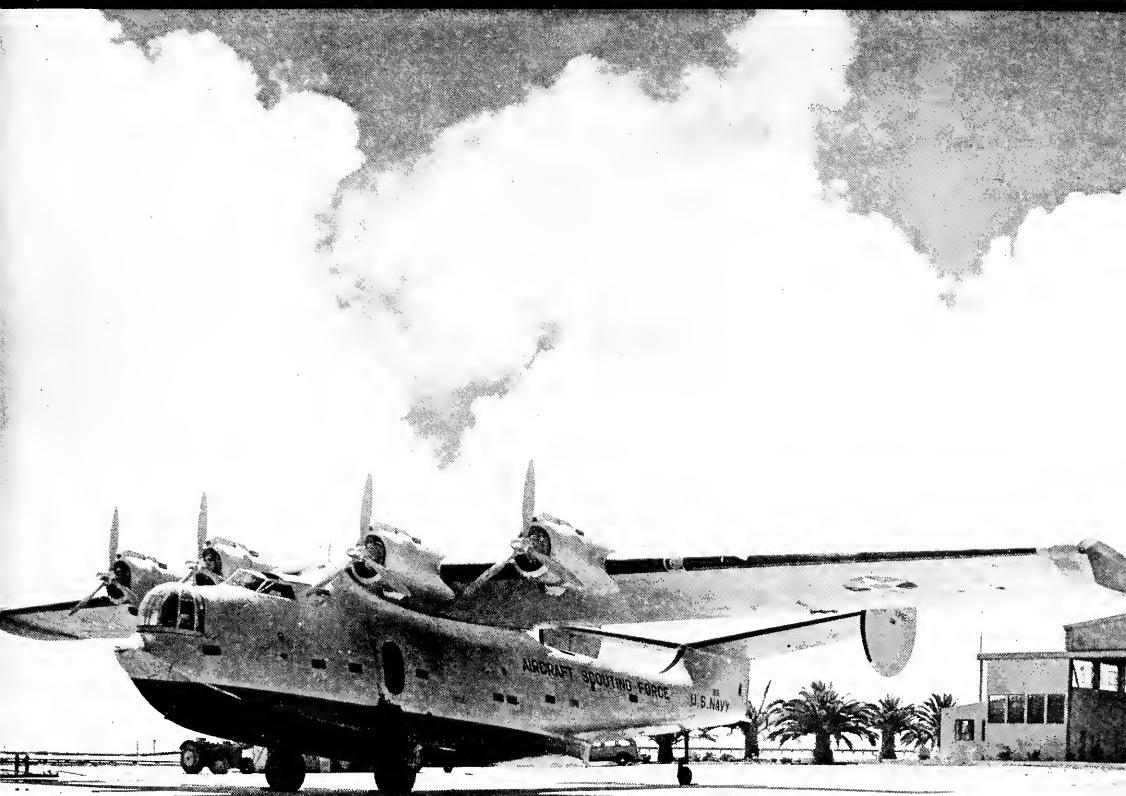


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OCTOBER • 1939

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NOTE: The Radio Dealers of San Diego reserve the right to cancel this free-conditioning offer at any time.

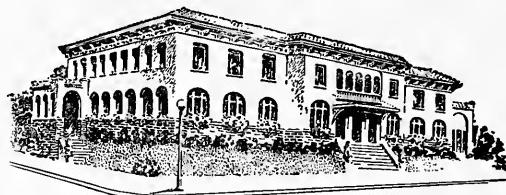
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CONSOLIDATOR

Volume 4

October, 1939

Number 10

ENGINEERS ABROAD

M R. E. G. STOUT of our Engineering force ("Ernie" Stout, to most of the plant) played an important part in the recent meeting of the Institute of Aeronautical Sciences, held in Los Angeles, Friday, September 8th.

On that occasion, Stout was called upon to present a specially prepared technical paper entitled, "Some Notes on the Design of Big Boat Hulls." Dr. W. L. Howland of the California Institute of Technology, who also presented a specially prepared work, shared the spotlight of the evening. Dr. Howland's paper was entitled: "What Can We Expect of X-ray Inspection?" Disclosing some remarkable results thru the X-ray inspection of castings and forgings. The work thru which the discoveries were made, was carried on jointly by Dr. Howland and Mr. T. A. Triplett of Triplett and Barton.

Engineer Stout's paper dealt with the recent experiments on which Stout has concentrated with his co-workers in the attack upon the many problems involved. Specifically Stout's address pertained to notes on reducing drag, increasing the load for hulls and the determination of porpoising characteristics by use of dynamic models. According to all reports on the work that Ernie presented, it was most favorably received. Attending the meeting with Stout were Engineers Joe Farnme, E. Berger, Burr Carroll and G. H. Gill of *Consolidated*.

A contributing factor to the success of the presentation was the inclusion of motion pictures to illustrate many of the points brought out. Ernie is very enthusiastic in his praise of the part photographer Otto Menge played in not only taking these shots of the dynamic models in action, but in making the proper titles, and in working up to the last minute to have the movie ready for the occasion.



The oldest institute of aeronautical sciences is Britain's Royal Aeronautical Society, founded January 12, 1866 . . . when balloons were the only means of getting people into the air.

REGULATION

Amendment No. 25 has been received from the Civil Aeronautics Authority which amends Section 60.2410 of the Civil Air Regulations to read as follows: "60.2410 *Amber Civil Airway No. 1* (Airway Traffic Control Area Designation) From the intersection of the center line of the south leg of the San Diego radio range and the United States-Mexican border to a point 25 miles south of the Medford Oregon radio range station." This airway formerly extended from a point 25 miles north of San Diego to a point 25 miles south of Medford Oregon. This amendment becomes effective as of October 1, 1939.

This amendment, according to local Civil Aeronautics Authority representatives, results in the San Diego area, including Lindbergh Field, Naval Air Station, and seaplane landing and operating waters, coming substantially under the jurisdiction of the C. A. A. Airway Traffic Control. It is pointed out, however, that the C. A. A. jurisdiction as far as military operations are concerned applies only to actual flying over civil airways, and not to any other maneuvers. It is understood that C. A. A. has a leased telephone line from San Diego to the central traffic control at Los Angeles, and that all planes flying the control area must submit flight plans and get approval from this C. A. A. traffic control center.



Our Representative Returns

Another of our Service Representatives has made his appearance back at the plant. H. E. Kraus, who served in this capacity for some eighteen and a half months at Pearl Harbor, T. H., with the PBY's there, returned briefly to the plant on July 21st, straightened up a few things and went on a month's vacation. Kraus, it will be recalled, joined forces with *Consolidated* in July of '34, and was the service representative who accompanied the original PBV "X" job to Norfolk, Va. and Washington, D. C. Kraus' statement about Hawaii is that it is a beautiful place, yet he's still glad to be back.

ANOTHER STAR SWIMMER

LAST month we had the honor of presenting John Woodhead, Sr., of the Wood Shop, as a rough water swimmer of no mean ability, with apparently no handicap in his 58 years. Just after this information went to press, it was disclosed by Ken Jackman that another rough water swimmer was employed here at *Consolidated* in the person of John Brahtz of the Test Engineering Group. In fact, with no previous training for the event, Brahtz came out 1st La Jolla man in the recent La Jolla rough water mile and a half event and won a trophy for his efforts. His time was 48 minutes. The event was won in 44 minutes. Brahtz came to the *Consolidated* Engineering department from Stanford University with a B.S. degree in Structural Engineering and was a member of the Stanford swimming team. In the National City Olympic events he came off with a gold medal for his swimming, and in the San Diego and Imperial A.A.U. Championships he took two firsts and one second place in swimming events. If the influence of the examples set by Mr. Woodhead, Sr. and by Mr. Brahtz has an effect upon the rest of the personnel, the prediction is that there will be a boom in the sale of water wings.



MAKE IT GROW . . . MENTION CONSOLIDATOR

It seems to me, folks, we could make our magazine just about the finest medium of contact between ourselves and the many and assorted local businesses whose monthly advertisements help support its publication.

What with our employment building up, naturally we all want to see our *Consolidator* grow too. So, how about every one of us becoming a committee of one to make a practice of always mentioning our magazine whenever making a purchase or visiting any of our advertisers' places of business. In this way you have no idea how much good we'll be doing ourselves.

Remember, just say "We saw your adv in the *Consolidator*!"

—7119.



FLAGPLANE . . . XPB2Y-1

(Our enquiring reporter was able to contact Commander Andrew Crinkley, who has had much to do with the flying of the XPB2Y-1, and to gain from him some of the facts about the recent Alaskan flight of the plane, which were subsequently corroborated by him and are presented here for Consolidator readers.—ED.)

APPROXIMATELY one year ago, Commander Andrew Crinkley (then Lieut. Comdr.) and a crew of ten, hopped our XPB2Y-1 completely across the continent on rather short notice, in a non-stop flight from San Diego Bay to Anacostia, Washington, D. C. The huge four-engined craft, unequipped for descent upon land, spanned the continent with ease. After a brief stay which included an inspection

by President Roosevelt, the same crew took off and made the return trip, likewise non-stop and across land with equal facility, even though the plane encountered strong headwinds over much of the long distance.

These flights demonstrated rather forcefully how our ship had blossomed into a full-fledged migratory bird capable of spreading her wings for virtually any portion of the globe. The point was expressed most aptly by Commander Crinkley after the return flight: "This flight was made in all respects in a routine operation manner, and no special consideration or preparation was necessary in its accomplishment. Upon our arrival in San Diego once more the crew felt confident that the ship could have been refueled and departed for Honolulu or any other point immediately."

Bedecked with much of her experimental gear and paraphernalia, the plane was returned to the plant for modification and alteration for a new phase of her career; and considerable time was spent in fitting her for her new duties. The experimental equipment was removed and comfortable accommodations and permanent fittings arranged within her hull, for she was

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Flagplane XPB2Y-1 over Sitka Harbor, Alaska.

destined to become the *Flagplane* of the Aircraft Scouting Force.

On the morning of August 20th at 6:00 a.m. the refitted XPB2Y-1, under the command of Commander Crinkley took off from San Diego Bay for Seattle. Those handling the big four-engined flying boat were: Comdr. A. Crinkley, Lt. T. E. Gillespie, Ens. J. A. Ferguson, G. K. Herman, CRM, L. A. Flinn, ACMM, J. A. Peters, ACMM, R. L. Caron, RM1c, C. R. Roof, AMM1c and A. H. Geck, AMM2c. The flight to Seattle was made in foggy weather, flying over the top and against headwinds. The arrival after the non-stop flight, was made at 2:30 p.m.

At the Sand Point Naval Air Station at Seattle, the plane was the center of considerable interest, and was inspected by the officers and their families. Beaching gear had been shipped ahead, so that it was possible to run the ship up out of the water at this point. Vice-President Wellwood Beal, and all of the engineers of the Boeing Aircraft Company inspected the ship throughout, and a single flight was made while at Seattle.

On the 24th of August at 8:00 a.m. Admiral A. B. Cook, commanding the Aircraft Squadron of the Aircraft Scouting Force, by dispatch, hauled down his flag on the U.S.S. Memphis and hoisted it aboard the XPB2Y-1 Flagplane, thereby establishing a precedent in Naval History. Never before had such a flag been officially hoisted on a plane. The huge plane, by formal procedure, thus became the first Flagplane ever to fly for the United States Navy . . . a signal honor.

At 8:00 a.m. on August 26th, Admiral A. B. Cook, Congressman Scrugham of Nevada, Comdr. Ralph Davidson, Comdr. S. H. Warner, Lieut. Hugh H. Goodwin, Lieut. R. S. Purvis, Ensign T. M. Wold, U.S.N.R., plus the crew, embarked and departed for Sitka, Alaska. The weather was good and the visibility excellent, enabling all to enjoy a wonderful view of Alaska. Arrival at Sitka was made at 2:45 p.m. and the XPB2Y-1 became the first four-engined plane to be based at the Sitka, Alaska Air base. As there was

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Lindbergh Field

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October, 1939

no beaching gear at the base, the plane was left at anchor in the bay during her stay and the crew lived aboard.

On the 28th of August an observation flight was made northward of Sitka over prominent glaciers of that area. The weather was phenomenally good, affording a wonderful view for the entire observing party. Comdr. Crinkley recounts that five large glaciers were passed over, and that they flew over Cross Bay and returned over Inland Passageway and flew over Juneau, capital of Alaska. Added to the regular crew aboard the XPB2Y-1 on this flight were: Captain S. A. Manahan, commanding officer of the U.S.S. Memphis; Comdr. R. E. Davidson; Comdr. Wm. A. Heard, executive officer of the Memphis; Comdr. E. D. Foster, (SC); Lieut. Comdr. B. L. Braun; Lieut Comdr. J. V. Carney and Lieut. Comdr. R. S. Silvas (Mc) U.S.N.

After Admiral A. B. Cook departed from Seattle in the XPB2Y-1 Flagplane, the U.S.S. Memphis proceeded to Sitka, and after a 5 day stop in Sitka departed for Kodiak. After having flown on his Flagplane, the XPB2Y-1 from Seattle to Sitka, Admiral Cook accompanied Patrol Squadron 42 (composed of PBYS) from Sitka to Kodiak, and from there to Dutch Harbor, where he was again met by his surface ship, the U.S.S. Memphis. The Memphis then proceeded to Honolulu. Thru the use of his new Flagplane, and the PBYS of Patrol Squadron 42, Admiral Cook was enabled to carry out a very complete inspection of several widely separated bases, while the surface ship was steaming between them.

On the 5th of September at 6:00 a.m. the Flagplane XPB2Y-1 embarked Congressman James G. Scrugham and party for San Francisco. This flight was thru rain and fog, above the fog and finally clear weather. Arrival was made in San Francisco at 3:20 p.m.

After disembarking Congressman Scrugham and Ensign K. G. Davis, U.S.N.R., Commander Crinkley and his crew again took off at 4:00 p.m. headed for San Diego. The weather became bad and the run was made against headwinds, but the speed was about 204 miles per hour and the huge plane came to rest at 6:30 p.m. on San Diego Bay. Visibility was one mile and the landing was accomplished after dark. Over all, the Flagplane XPB2Y-1 under the guidance of Commander Andrew Crinkley and his crew, made the flight from Alaska to Mexico in an elapsed time of just 11 hours and some few minutes, demonstrating once again the potentialities that exist in the use of the Flagplane XPB2Y-1.

MACHINE SHOP

Bob Williams of the Machine Shop won't get over the kidding surrounding the events which took place near the time Mrs. Williams presented him with a son, Master Robert Lee Williams, Jr. It seems Bob got excited (so the story runs) and fell from a ladder, nearly breaking his neck. He was laid up for a week. Robert Lee, Jr. checked in on the morning of Sept. 10th, weighing 7 pounds, 9 ozs. . . . and was, as Bob states . . . "21 inches long". The arrival took place at the Mercy Hospital . . . but maybe Bob should have stayed there: A heavy drill jig fell on his toe. Both Jr. and Mrs. Williams are doing nicely. Bob may, in time recover . . . if something else doesn't happen to him.

MAINTENANCE NEWS

The maintenance crib is displaying a glittering bit of plunder that R. Combe and his brutes pulled away from the judges in the Annual Tug-of-War.

Al Fink's wife and daughter, Shirley, have been enjoying a vacation back in home town Buffalo for the past six weeks. Esther might have a hard time getting Al back, for I think he has become accustomed to his mother's cooking again.

Mr. Giovanol's spittoon was misplaced the other day. The thing that makes it on the funnyside, was that Mr. Joe did not realize his plight until he was exactly ready to use it.

Mr. Combe has acquired the nickname of "Soupy", obviously because of his recent loss of teeth, and newly acquired diet. In spite of his loss, and consequent questionable diction, he is able to plainly state, "Our passh sloftball seasson wasss very slucklessful."

We are glad to welcome Mr. Borice and Mr. Christensen, Electrical and Mechanical Engineers to Plant Engineering Dept.

Cecil Flower has a new car. "Ain't it grand what love and a small down payment can do."

"The hardest fall any man can have is over his own bluff."

"He was a self-made man, a horrible example of unskilled labor."—Ed Wynn.

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TOOL ROOM NOTES

By Speed

During the recent hot spell, Bob Lamonte wore his sweater as usual. After a couple of real hot days the bookies had the odds at 2 to 1 that he wouldn't remove it. When that extra hot Wednesday came, and still no signs of weakening . . . odds shot up to 5 to 1. For some unaccountable reason he weakened on the cooler side. . . .

We have finally found out how Bob keeps cool on these hot days, reports No. 1222 because Bob has a refrigerator in his drawer which is run by dry ice.

Maybe it's something else, Mary Evelyn Lamont, a pretty little 7½ pound tot, arrived on Saturday morning, August 26th, at 8:45. Mary Evelyn has found the first few weeks of her life quite enjoyable.

"Robby" Robinson is a lucky fellow on the Sportfisher. He took the \$7.50 jackpot one week for a 22 pound White Sea Bass, missed it only by a half pound on another occasion.

FINAL ASSEMBLY SQUEAKS

By Andy

All the boys are hoping for a speedy recovery of your wife, Al.

Brennan's wife wants to know how he gets the seat of his pants so dirty if he is working. . . .

Jimmie Major had the rocks on his front lawn painted brown to match the grass, but since the recent rains he will have to paint them green.

Have they taken your prints away, Sam, or haven't those new pants of yours back pockets?

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NEXT DOOR NEIGHBORS . . .

WITH thousands of fliers needed to man the 5,500 fighting craft called for in the current Army expansion program, it was readily seen that training facilities at Randolph Field, famed "West Point of the Air," would be inadequate to meet the situation.

As a result, San Diego today has a miniature "West Point of the Air" here at Lindbergh Field at the Ryan School of Aeronautics, base for an Air Corps Training Detachment training 35 flying cadets every six weeks.

Eight other commercial flying schools, in addition to Ryan have been selected on the basis of experience and facilities to relieve Randolph Field of the burden of

giving primary flight training to newly enrolled Air Corps Flying Cadets.

During their course of training here, which is supervised by commissioned Air Corps officers, cadets receive 65 hours of flight instruction and 225 hours of technical training.

Newly assigned Army officers here are Capt. John C. Horton and Lieut. Lloyd P. Hopwood, both from Randolph Field. They are assisted by Major H. B. Porter, medical corps, and a group of technical sergeants.

All flight training is in charge of Paul Wilcox, Director of Flying at the Ryan School. He and twelve other Ryan instructors have just completed a special training course in Army flight operations at Randolph Field.

Technical training and maintenance of aircraft comes under the direction of Walter K. Balch, Chief Technical Instructor of the Ryan School.

Within the past few weeks, the Ryan Aeronautical Company has completed a fleet of Ryan YPT-16 low-wing training planes for the Air Corps, and these assigned to the Training Detachment here. Later they will replace biplane trainers which have heretofore been used.

The change from biplane to low-wing trainers marks a radical change in Air Corps policy, this being the first time in Army history that primary Army training has been given in low-wing monoplanes—excellent recognition for the locally built Ryan planes.

To house the flying cadets, the Ryan School has just completed an eighteen-unit barracks, mess hall and recreation

room overlooking the *Consolidated* factory at the corner of India and Sassafras streets, into which the fledgling fliers moved last month.

Under present plans, 35 cadets will arrive every six weeks during the new year or more for a training course lasting twelve weeks. Consequently there will generally be a group of from 55 to 70 cadets stationed here at all times.

There are thirty-two Army training planes daily operated from Lindbergh Field in instructional work for the cadets, supplementing the regular training work of Ryan's commercial school which operates eight trainers. Most of the actual training is done over Kearny Mesa, with practice landings and take-offs being made at outlying auxiliary fields.

Cadets who have successfully completed the course here will be advanced to Randolph Field for basic flight training. From there they will be sent to nearby Kelly Field for specialized instruction in the essentials of formation, advanced instrument, night and cross-country flying preparatory to graduation as second lieutenants in the Air Corps Reserve and assignment to the various tactical Air Corps centers throughout continental United States, Hawaii and Panama.

Recent appropriations have been authorized by Congress to increase the personnel of the Air Corps and provide for the training of many additional pilots. Consequently there are many appointments as flying cadets still available, and those who qualify and are interested are requested to communicate with the proper authorities immediately.

Candidates for appointment as flying cadets must be unmarried citizens of the United States who at time of application have reached the age of twenty and who have not reached their twenty-seventh birthday. An applicant must present a certified document from the office of the registrar of a recognized college or university showing that he has completed satisfactorily at least one-half of the nec-



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Group of Ryan flight instructors with Air Corps officer. Left to right: Instructors Ben Johnson, Ben Hazelton; Paul Wilcox, Director of Flying at the Ryan School; Lieut. Lloyd P. Hopwood; and, Rosmond Blauvelt. Latter is Flying Cadet Zins' instructor.

Flying Cadet and Instructor. The cadet, left, is William E. Zins who before joining the Air Corps was employed in the Consolidated engineering department.

The line-up of Ryan trainers, Military versions of the Ryan S-T Trainers, on Lindbergh Field.

essary credits leading to a degree which normally requires four years' work, or must pass a written examination in lieu thereof.

The pay of a flying cadet is \$75.00 per month. In addition there is a ration allowance of \$1 per day, which is sufficient to maintain a first-class mess. A further allowance has been made to cover rental expenses while undergoing training at civilian flying centers.

A former Commanding Officer of Randolph Field in discussing careers in the Air Corps recently said:

Consairians About Town

By W. H. Fink

J. Lockwood, dispatcher, says that he had a swell time at Del Mar beach last Sunday. We think that we could also have a swell time with so much "oomph" playing around in the sand.

"Morg" Morgan, Draw Bench, is recovering from his numerous injuries, the result of an automobile accident. Morg expects to return to work in the near future. The Draw Bench boys wish you a speedy recovery, Morg.

Harold Smillie, former Consairian, is all smiles these days because of his new job over on the "island". Smillie was the rivet machine operator in the Draw Bench department.

Johnny Kelley, Sheet, recently married has a forlorn, envious look on his face every time his pal, Bud, speaks of having a little fling over the week-end. Cheer up Johnny you'll get used to it.

The Maintenance Department won the tug-of-war, at the picnic as you no doubt know. But, with all the beer that the boys drank it is a wonder that they did not pull their opponents to kingdom come. Incidentally there are some swell pictures of these beer guzzlers at the Maintenance Crib window.

We are very grateful and appreciative of the many acts of kindness shown to us and the many expressions of sympathy tendered to us, by the members of *Consolidated's* family, in our recent sorrow.

William A. Maloney,
William S. Maloney,
Joseph H. Maloney.



"Every young American college undergraduate, in planning his future, should think of Randolph Field just as he thinks of any other postgraduate professional school—provided, of course, that he has the necessary physical qualifications and the desire to fly.

"Naturally it is the most difficult to

enter of all post-graduate schools. But if you win your wings, you can take a just pride in having accomplished something worth while and you will have had at least 250 hours of flying before you are graduated as a Second Lieutenant."

A mistake is what not to do next time.

Wm. Gramse, Draw Bench, has been walking around the department nights singing "Molly and Me and Baby Make Three." Could it be that there is to be an addition to the Gramse household? Could Be.

Al Blair "Spot Weld" has moved from Mission Beach into Ocean Beach so that he will be closer to that new welding machine. Incidentally, Spotty and Chuck Hibert will have to go to night school now so as to learn French and the metric system of measurements.

Any morning you may be seeing W. Freeman and his riders from the beach walking to work. The old Willys is applying for Old Age Pension.

Along with the increase of work and new men in the plant we have had an increase of phrases and names in regards to tools. These were heard in the Draw Bench Dept., "Let me use your angle gadget"—(Starrett calls it a protractor). "Kin I use your metal scissors" (tin snips to you). "Have yuh gotta thickness gauge the kind that turns." (Could he mean "micrometers?") A three-cornered gadget (meaning a scraper!) Well, as the saying goes "live and let live."

"Slim" Franklin, Tube Bender, is passing out Van Dyke cigars these days. He is the proud father of a bouncing baby girl, Miss Judith Franklin. Born Sunday, Sept. 18th. Thanks for the smokes, Slim, and best of luck.

"Stay Alert and Stay Alive."



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Facts About the Femmes

By KATHLEEN SCHNEIDER

DAN CUPID seems to be working overtime among the *Consolidated* girls lately. Saturday morning, September 9th, Catherine Phipps and William Gebing spoke their vows before the beautiful altar of St. Joseph's Church. Catherine, radiant as a bride should be, looked lovely in a white lace gown with matching cap and veil. Her bridesmaids, dressed in peach and blue, carried bouquets in pastel shades. The newlyweds left immediately after the wedding for a trip to Catalina.

Among the guests were Lee Johnson, Juanita Smith, Avis Clarke, Grace Koenig, Mary Eleanor Meredith, Marcella Holzman, Ann Howard, Irma Robbins, Grace Swearingen, Margaret Kendall (a former co-worker of ours), and Kathleen Schneider.

All the *Consolidated* girls extend a hearty wish for a lifetime of smooth sailing to Mr. and Mrs. Gebing.

Jean Henley reported for work the other morning with a car and left for home that night with an accordion. Jean's car happened to be the end one in the freak accident that occurred in front of the plant recently and, consequently, it took most of the bumps. It was fortunate that the accident didn't happen a few minutes earlier or the result might have been very serious. Gee, we're glad Jean



didn't sit in her Dodge to eat breakfast that morning or we might be feeling sorry for a human accordion instead of a mechanical one.

We bid farewell to Dorothy Peterson who has been a member of the *Consolidated* personnel for over three years. We wish Dorothy loads of success in whatever she undertakes.

Mary Eleanor Meredith, and her giggle, is back with us again. She is now secretary to Mr. Learman and we hope to see her "bubble bath" personality around here for some time. Speaking of pleasant dispositions, hats off to Jane Dunn for always wearing a smile while at work. Anytime an employee appears at the Cashier's Window in the accounting office, he may be sure that Jane will greet him with a pleasant word or a grin. (Now don't let me down, Jane.) These two gals certainly have discovered the fountain of everlasting cheer but not many of us have intercepted their secret.

Mary Nugent seems to be the gal who gets all the wedding info weeks in advance of the rest of us. Let this be a warning if

you're contemplating a surprise engagement, keep away from Mary's observing eye. Mary has beaten us to first-hand information on two of our recent brides, but we've got our eyes and ears to the ground this time and hope to beat her to the next Dan Cupid target. But who it will be, at this time, is very questionable. It seems as though all of our eligibles have taken the fatal step and the "confirmed old maids" that are left are poor targets for engagement news seekers. That "Old Ladies' Home for Disappointed Damsels," on which several of us have been drawing up blueprints, seems to be a reality instead of a vague idea, Shucks!

Summin' up the Picnic: Despite on-again, off-again showers, everyone at the 4th Annual *Consolidated* Picnic on September 9th at El Monte seemed to be having one grand time. What's a few drops of rain when you have on your old clothes and are out for a good time? (But what havoc those rain drops played with feminine curls—they began to droop like wilted daisies.) From morning 'till night there was something doing every minute and when your eyes were strained from watching the interesting contests, you could climb a mountain or fill yourself up with ice cream, beer, orangeade, or a dozen other picnic refreshments. Of course, the beer was the least popular part of this picnic—it practically went to waste in the barrels—???.—Grace Koenig could be seen from any part of the grove in that bright orange blouse. In fact, Mary Eleanor Meredith and yours truly climbed the "little hill" in back of the picnic grounds and the first sight to catch our eyes when we reached the top was a bright orange spot on the grounds below. We finally got out our field glasses and discovered it was none other than our own Planning pal, Gracie. Where did you get that modest blouse, Miss Koenig?—Three cheers for the fellow who reached the top of the greased pole and claimed the cash prize; he earned every cent of it. He ought to be down in Africa climbing coconut trees. For awhile it looked as though several of us short feminine onlookers would have to stand on top of each other and reach that coveted cash prize but just when we were giving the idea serious thought, we saw the winning polecat climb up and claim the honors—Margaret Kendall was so serious about that measuring contest that we felt sure she would be the winner.—Fran Warner insists that she was at the picnic but she must have been hiding in someone's lunch basket.—Grace Swearingen was either heading for, or just leaving, the ice cream stand every time we saw her. Yes, you must admit we had a

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Joseph Noonan
701 "C"

October, 1939

lot of fun at this year's picnic and will be looking forward to the next one.

We take time out to welcome the following new girls to *Consolidated*: Lois Props to the Army Office; Beatrice Jackson and Florence Cannon to the Accounting Office; Evelyn Kells to the Purchasing Department; Norma Buell, Dolores Elliott and Grace Ellerman to the Employment Office.

The name "Grace" is more popular than one realizes. With the addition of Miss Ellerman to the Employment Office, we now find four "Graces" employed at *Consolidated*. We've heard of the three Graces before, but the fourth Grace is a new one to us. Grace Koenig started this name monopoly, then came Grayce Holm to the Employment Office. The third "Grace" to appear was Miss Swearingen, and now Miss Ellerman enters to complete the cycle. Wonder who the fifth will be?

As a special request, won't somebody please do something about that combination of Lucille Fisher and Lorine Mounce sitting on the same chair at noon? Any likely solutions will be gladly considered.



Recent Changes in Federal Old-Age Benefits

THE recent amendments to the Federal Social Security Act not only changed the benefits for retired employees, but also provided benefits for widows, dependent children, parents, and aged wives.

Beginning in 1940, each employee attaining age 65 will be entitled upon retirement to receive a monthly benefit equal to 40% of the first \$50 of average monthly wages, plus 10% of the remaining wages up to \$250 a month. This amount is to be increased 1% for each year the employee earns in excess of \$200 and pays old-age benefits tax thereon. The minimum benefit is \$10 a month.

The revised retirement benefits are illustrated in the following tables:

SINGLE PERSONS

Monthly Benefits Payable to Employees Who Have Earned an Average Monthly Wage of \$100, \$150 and \$200

Years Covered	\$100	\$150	\$200
3	\$25.75	\$30.90	\$36.05
5	26.25	31.50	36.75
10	27.50	33.00	38.50
20	30.00	36.00	42.00
30	32.50	39.00	45.50
40	35.00	42.00	49.00

MARRIED PERSONS

Monthly Benefits Payable to Employees Who Have Earned an Average Monthly Wage of \$100, \$150 and \$200

Years Covered	\$100	\$150	\$200
3	\$38.63	\$46.35	\$54.07
5	39.38	47.25	55.12
10	41.25	49.50	57.75
20	45.00	54.00	63.00
30	48.75	58.50	68.25
40	52.50	63.00	73.50

The monthly benefits payable after January 1, 1940, to employees' survivors are outlined below:

A widow, regardless of age, who was living with her husband when he died, and who has in her care one or more unmarried children under the age of 18, is entitled to receive three-fourths of her husband's monthly benefit. These benefits cease when the widow remarries or the children of the deceased husband are married or attain the age of 18.

An unmarried dependent orphan is entitled to receive one-half of the monthly benefit of the deceased parent until such time as the orphan marries, is adopted, or becomes age 18.

A parent whose child has died leaving no widow and no unmarried surviving children under the age of 18, is entitled to receive one-half of the monthly benefit of the deceased child provided such parent has attained the age of 65, and was wholly dependent upon and supported by the child.

An employee's widow who has attained the age of 65, who was living with her husband when he died, and who has not remarried is entitled to receive three-fourths of the monthly benefit of her husband.

The maximum monthly benefits payable to either retired employees or their survivors is limited to (1) twice the monthly benefit of the employee, (2) 80% of the employee's average monthly wage, or (3) \$85 a month, whichever is lowest.

Each employee should acquaint his dependents with the information outlined above.



No man should be criticized for a frank statement of opinion if it be made in good temper and free from unseemly invective.

BEHIND THESE DOORS SERVICE AND ECONOMY



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Broadway at Tenth

METAL BENCH NEWS

Teddy (Begonia) Edwards has enlarged his lath house and will accept any kind of cactus or plant that is offered him. (Gold fish too.) —2930.

Geo. Eggleston had his first instructions in traffic speeds on Pacific Highway Saturday. After it was all over he had a nice pink diploma for his first lesson —2930.

Bill (Nibbler Bill) Milton of the Bench Dept. was invited to ride to the picnic in Benny Kiegle's new Plymouth; and to show Bill's Scotch and Boy Scout in him, he guided Benny by way of Escondido so he could get a longer ride. We hope that you don't give the new son-in-law the run around like this. —2930.

For the first time in weeks Chester Dudzinski has both the areas around his eyes clear of any dark colorings. Did you finally get the knack of "dodging doors, Chet?"

Phone Jackson 2011 Chick Runyon

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WING BUILDERS . . .

By Larry Boeing

BUILDING aircraft in the modern manner requires organization detail not unlike a military machine. Every item that might concern the militarist in the field, also concerns the department heads of an aircraft manufacturing organization, and the actions and morale of the individual members must be much the same if objectives are to be gained.

In the course of a military campaign the objective is usually the enemy's important manufacturing centers or rail heads . . . In aircraft manufacturing it's getting the finished product ready for delivery at a definite, planned date.

Let us consider how this planned strategy works out in *Consolidated's* Wing Department: Long before the actual work begins on the wing structure itself, the department head and his assistants are informed just what type of wing is being designed. They are often referred to when questions of practicability of manufacture, or simplicity are concerned and their valuable opinions based on years of experience are considered indispensable by seasoned engineers.

The final design decided upon, and the quantity that will be manufactured determined, this board of strategy begins to map out a campaign to meet the objective. First the Tool Design confers with them about tooling up. Plant layout is important for beside the arrangement that will guarantee satisfactory progressive assembly operations, light and air lines must be installed and parts racks must be placed at convenient locations.

The time element is all important. Men must be trained to do particular operations and detail sub-assembly work. The use of new tools must be properly explained.

The campaign is well under way at the time the first assembly jigs and fixtures are being delivered from the loft, woodshop and tool room. Various men are acting as "Lieutenants" in this complex game. Working directly under them are a group of "Sergeants" who are doing the job of instructing a large group of men who are doing specific assembly jobs on certain parts of the plane.

Specialists come into use in the form of trained men who originate the assemblies and plan the routines. Slowly at first and then at a faster rate, the detail parts are placed in the jigs. Rivet holes are drilled. The details riveted together. The smaller assemblies are turned over to groups doing larger assembly work in larger jigs until the final mass of spars,

beams, stringers and attaching fittings are placed in the huge assembly fixture that looks more like a highway bridge than anything else imaginable, and often is much larger than most of them.

In this huge jig the parts are accurately located and this guarantees perfect interchangeability. The skin is then riveted in place and the item is soon ready for its pressure test.

All during these operations a communication system is in constant use. Contacts with Engineering officials by phone or personal call, clear up manufacturing problems. Clerks and Dispatchers are meeting the needs of the men with loads of detail parts that are brought up by a fleet of Truckers who very efficiently handle the large quantities of materials needed and deliver them to the proper position on the line.

Accurate checks are made of each day's progress and causes for delay or failure to keep pace are carefully noted and corrected. Men are added here or transferred to another job when help is needed. All these moves are planned and executed with the utmost of concern by the board of strategy solely responsible for the successful completion of the finished detail.

In the Wing Department also are made the large control surfaces; the rudders, stabilizer, ailerons and flaps and all of these must meet other units of the plane being produced in other departments at the same time in final assembly so that no delay is experienced.

Men, Maps, Supplies, Communications and Operations Control are brought together and the objective is soon reached and taken.

The "Army" whose efforts you have been reading about is made up of men who know their jobs. They are led by "Herb" Ezard, whose manufacturing training began years ago in the cotton machinery business in Manchester, B. I. He is assisted by Steve Powell and Lawrence Mineah.

Also assisting Mr. Ezard in various capacities is a large group of men, most of whom can boast of years of aircraft experience. Many worked on the first all metal boats ever built.

Today's airplanes are designed to do jobs that most people would deem impossible. The wing itself is no longer just a device to assist the plane along thru the air with its lifting effect. To it are fastened the outer Wing Panels the Trailing Edge assemblies, the Leading Edge assemblies,



the Ailerons, the Floats, Flaps, the oil tanks and engine mounts and the engines themselves. Into it are built the Fuel Tanks, and thru it pass a system of cables, hydraulic lines and wires that match the human nervous system for Complexity. When the whole assembly is complete they hook on another system of controls and mountings for operating the retractable landing gear assembly which folds neatly into the wells provided in the wing structure.

Top: Steve Powell, Herb Ezard and Lawrence Mineah discuss a new wing problem and plan methods of manufacturing procedure. Don Kimball, department clerk, records the previous day's progress.

Top center: Frank Heidemann, "Army" Armstrong, Jack Campbell and Art Duncan checking over a new bulkhead assembly prior to riveting operations.

Center photo: Steve Smith checking the work on a spar assembly that John Waskey and Charles Szymczak are drilling.

Bottom center: Gilbert Lance, Leo Klingennier and John Strachan checking over an assembly jig detail. All lead men build the first assemblies themselves.

Bottom: Stanley May, Harry Edgemann and Elmer Gahlbeck build the first control assembly and plan assembly routine for later production.

Photos of Fuselage and Hull structures are always interesting, but very seldom is one given the opportunity of seeing the wing covering removed so that the interior arrangements in all their complexity can be observed.

Overseeing the detail construction of the Wings and Surfaces are John Strachan, Gilbert Lance, Dick Moore, Steve Smith and "Army" Armstrong. These boys handle Center Section assembly, Outer Wing Panels, Night Wing Assembly, and Bulkheads respectively. Earl Nottleman handles Spare Wing Assemblies, which is no small item when one considers the numerous types of Wings we furnish Spare Parts for.

The Surfaces, Spare Wing orders, Final Wing service at Final Assembly and Night Assembly operations are handled by H. Eigenmann, L. Klingennier, H. Hatch and J. Petit.

E. Gahlbeck supervises the construction of Leading Edge assemblies, while E. Merlau is in charge of Pressure Testing the finished Tanks Assemblies.

Sheeting and Stringer assemblies are handled by Gene Coloman and E. Schnaubel in their respective Day and Night shifts. H. Deliganes is in charge of all Layout work and Templates that are required.

Jack Campbell has the job of seeing that Outer Panels are properly built. Rudder construction is carefully watched over by C. Patrick while Elevators are E. Jackson's big problem, but he doesn't wait long to work it out.

They have found ways to hang everything else onto the Wing Assembly, so it is not surprising to find W. Miller working away like a Trojan. His job is to assemble the landing gear mountings and retracting mechanisms.

M. Douse, L. May and "Red" Jackson handle Leading Edges, Ailerons and all the Riveting, respectively.

Herb Ezard is proud of his boys and never misses a chance to tell about them

and their work. He likes to remember most of them as young boys whom he has watched progress from jobs on the bench in the old wood and wire days to their present responsible positions.

Gilbert Lance helped build the first boat *Consolidated* ever built. Steve Powell, Steve Smith and Johnny Strachan, are among the large group of early *Consolidators*. Lawrence Mineah came to *Consolidated* from the Thomas Morse Aircraft Corporation in Ithaca.

The evolution of aircraft design from plywood details, casein glue and wire brads that were re-enforced with wrap metal bands which were brazed together; progressed thru the years to today where one finds the most modern of alloys and manufacturing methods brought into use. Most of the boys in the Wing Department grew along with this natural growth and could tell many interesting stories of early day construction problems. Building wings never was an easy job. Even today, problems have to be solved that would cause many less strong hearted boys to give up. These boys are a deserving lot and proud of the results of their work.

You will agree this does sound like a small army, and no army ever went into action with better trained men, well laid plans and as perfect equipment. Their campaigns, carefully planned, never meet reverses of any size. Their objectives are met. Their progress is recorded, and just when the battle is won and the wings delivered, new campaigns are planned to meet new objectives. Always bigger, always something new, always something better, but like real soldiers they are off to battle with a cheery smile, and as "Army" Armstrong always says, "If Herb Ezard would only let me Parlay this job . . .!"

EXPERIMENTAL NEWS

By Droune

With the bowling teams starting their 1940 training, and experimental having somewhat of a new line-up it is really too early for predictions!

The line-up—

Hanzlik,	Kanv,
Lang,	Peterhansel,
Wright,	Sharp.

170 pounds of deer meat was brought to San Diego within the last few days according to F. D. M. Scout, Otto Peterhansel.

If this weather we are having is called Indian Summer, they should give it back to them.

"The world will never starve for want of wonders, but only want of wonder."

SHEET DEPARTMENT

At a quiet and reverent ceremony, John W. Kelly, clerk in the Sheet Department, was married to Miss Amelia Chappell in St. Mary's Cathedral, National City on September 2, 1939. The bride and groom left for a short honeymoon and are now nesting on a small rancho in Chula Vista until the completion of their new home. The best of luck to John and his lovely bride for a successful marriage.

—No. 1824.

One of the highlights of the picnic was Bill Sheriff of the Sheet Dept. trying to climb the greased pole with one foot on the ground.

—No. 1758.

Horses are fast, horses are slow,
But leave it to Connie and Miller
To get in the dough.

40 bucks apiece, is not very (*slow*).

—No. 1716.

Jim Masterson, make sure that you have two sets of keys for your car before going to any more outings where the beer is free with whiskey and gin on the hip.

—No. 1716.

Welcome back to the Sheet Dept., Eddie Di'Amico. How does it feel to be using the rivet gun again instead of the school teacher's cane?

—No. 1716.

After nine or ten years of married life E. Di'Amico of the Sheet Dept. finally got himself a baby boy 4 months old. May he be a regular pal to him. September 11 friends ran a surprise baby shower which was a great success with plenty of presents received for the little one. "Beer and ice cream galore; just like the *Consolidated* Picnic."



Don't be selfish and insist on the right-of-way—

Here lies the body of Benjamin Day
He died maintaining his right-of-way.
He was right, dead right, as he sped along
But he's as dead as if he had been dead wrong!

—No. 7081



The present endurance record for light planes is held by Humphrey and Hunter Moody. They remained aloft over 14 days . . . 343 hours and 46 minutes. Came down because of a severe electrical storm.



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It was learned that C. A. Van Dusen, III, son of our Vice-President and Works Manager, C. A. Van Dusen, was a member of one of the crews flying the PBYs on one of the recent massed flights from San Diego to Honolulu. Van Dusen III has achieved the rank of Ensign. It appears that this plane business is rather "in the family" so to speak, since Dad Van Dusen makes 'em, and Son Van Dusen flies 'em!



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WING KEYHOLE

Browne.

H. V. Atkinson of Wing Inspection recently won two of the four divisions in the finals of the Sun's Amateur Snapshot Awards, and one of his pair of prize-taking snapshots also won Grand Award. Vic's first Grand Award winner was a simple snapshot entitled "Splinters." It showed a mother taking a piece of wood from her child's palms. This was also judged best in the Children's Division. The second award for Vic was a sharply-focused landscape entitled "California Desert." It won first honors in the Still Life and Landscape Division. These winners will go into the \$10,000 national competition. Eastman Kodak Company recently purchased one of Vic's photos of the Grand Canyon. Popular Photography is another of Vic's goals in which we hope to see a good showing.

During a recent visit to the home of John Buchan of Production Department, I was informed by Mrs. Buchan that she awoke one night to find Johnny crawling about at the foot of the bed. When asked what he was doing Johnny (still asleep and dreaming about the shop) replied: "I just want to find some more parts before I punch out." We are glad to see Johnny so interested in his work . . . just as long as you don't dream about some parts in anodize or heat treat, John, and think you have fallen in the tanks.

Craig Clark who has been in charge of Wing dispatching is now in his new capacity as chief dispatcher on nights. We are glad to see Craig make this forward step and wish him much success in his

new undertaking. Robert Morse has taken over Craig's job in the Wings and we feel Bob will make a good showing in his new position.

From the sidelines we see Frank Heidemann is knee deep in ribs and bulkheads. Glad to see Frank is surging ahead. Don't let the fellows "rib" you too much, Frankie.

Two new clerks have been added to the Wing Department staff, Jack Hopkins and Dennis Chanis. We know both fellows will be of benefit to the Wings. Dennis, a former employee, clerks for Herb Ezard, while Jack clerks for Steve Powell.

It is too bad the weather plays tricks in California. Saturday on our annual picnic it had to rain. Despite this the picnic was a big success, I hear there was no beer left over. Larger and mo-better picnics in the future, eh! boys?

Steve Smith, after a hard day's work, was carrying some blueprints to the desk of Harry Birse when someone bumped him. The blue prints flew in all directions. I was passing by and happened to hear Steve's musical quotations. My goodness, Steve! Better luck next time.

Russ Seelig's wife should receive a medal for those delicious cakes she bakes. Wow, do they make your mouth water? How about some recipes, Russ?

You G-G—followers should pick up a few tips from Harry Deliganes on the "Hayburners." I hear Harry recently cleaned up at Del Mar.

The Wing Bowling Team is now bowling in the major leagues at the Elks Hall. "Heave Ho! Boys."



ROBIN HOODS

Several *Consolidators* and guests forsook the Pacific Ocean Saturday afternoon, September 16 (boy it was hot) and met at Inspector Russ Kern's place in Bay Shore Park to do some arching. In spite of the heat a good time was had by all; Russ Kern, Les. Crawford, Carl Gilchrist, "Spotty" Blair, Tom Eckles, Bill Gilchrist, Bern Swarts and four guests.

Another shoot may be held in the near future and all interested should keep a weather eye to the bulletin board.

B. R. Swarts, 1010.

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HOT SHOTS FROM WELDING

By Bill Hartman

SEEMS like poor Art Bommer is never going to catch up on his luck. Another smashup making four in as many weeks—tch—tch. You can always get a kiddie car or roller skates, Art.

If Gus Fougeron doesn't get his teeth pretty quick there won't be any milk left in San Diego. Gus enjoys watching his family eating steaks while he's on the liquid diet. Oh yeah!

Welcome back Roy Craft. Hope you had a nice vacation.

Seems like Cap Kogler and Jack Fleck had a race at the picnic to see who could carry the most beer—darn those paper cups. Cap says he would have won if he hadn't stopped to drink the first eight. After that it didn't matter. But did you notice Brownie? Next time he says he is going to take a bucket. Cups are no good, eh! Brown?

Benny—our man about athletics—Kieggle, says the next time he plays softball he's going to use a butterfly net. Incidentally if they had used balloons for baseballs maybe Benny could have gotten a hit. We never did find out what position he was playing—looked like half-back or wayback. Too bad Vic Perry couldn't be there. He sure would have made a swell back-stop or maybe it was because Benny took the Escondido detour to get to El Monte—tch—tch. It wasn't raining that much. Anyway the ball team seemed to have a swell time.

If Charley Pettit is looking for a good watchman for that store of his, Frank Kastalec says he would recommend Elmer Higby very highly. Sounds kind of zaney to us—

Didya ever notice Lou Curley Wilson gets all dressed up when he's about to use the buffing wheel? You'd think he was a member of the Antarctic Expedition. Maybe we ought to notify Admiral Byrd.

We notice Al Gatchell had to stick pretty close to Mamma at the picnic. She must know you, Al.

Any time you need any chores done call on C. E. Brown, only be sure there's plenty of beer because when the beer runs out so does Brownie.

Kurt Kruger is fit to be tied—seems like all this unusual weather we've been having has ruined his figs. So now Kurt won't be able to have his candy this winter—it's tough, Kurt!

Harold De Remer, our newlywed sand blaster, seems to enjoy wedded bliss. When asked where he was going to live he said with his wife—well stick to it say we.

'TIS TENNIS TIME

By Matt Wielopolski

THIS time it is a Men's Doubles Tennis Tournament. As was expected, this tennis cavalcade consists of 36 players or 18 teams. And, again there was an abundance of keen enthusiasm, close competition, and clean sportsmanship shown by OUK Consolidated Boys.

At 1:30 p.m. Saturday, September 16 (Incidentally the hottest day in 16 years) our boys, first group, walked on the Municipal Tennis Courts for their first competitive matches. After having pinged (practiced) awhile they took off their sweaters and trousers and began to play in their shirts and shorts. What a sight, what color, what physiques, and best of all what tennis playing. Upon completion of these tennis matches, our second group of players began their first round competition. And, again we saw tooth and nail battles. Such hard playing, spectacular tennis, and hot shots was never seen or done by any other Corsair Sport Competition.

Here are the accounts of stirring battles with the team victors and victims:

Those who expected Hudson-Kilgore to win easily over Vernon-O'Connor were fooled; the latter team won five games, the hard way too.

J. Brown's substitute, Basorg, teamed with partner Sonntag and lost to Carter-Phillips, 6-2, 6-1.

Due to unknown reasons, Aliangilli was the first absentee, causing partner Watson to give the first victory by default to Lockwood-McGown.

Whatever element of a bitter battle the preceding match may have had, if a player had appeared, still remains a mystery. However, the Hogue-Abels vs. Hagman-Jewell match made up for it. Although Hogue-Abels won the first set in 6-4, they lost the next two sets in 6-3 and 6-3, thereby eliminating themselves.

The team of R. George-Generalas was not generous at all, because W. George-Davidson team won an uphill battle by scores of 6-4, 6-3.

Kellogg emerged from his shell and teamed up with Haas, and as a result, they slaughtered the dark-horse team of Brady-Wielopolski. Hardly any score to be mentioned.

The team ability of Palsulick-Sharp has yet to be tested. A default gave them a victory. This time, Grandstedt did the grandstand act. His partner, Clark, was among the missing from competition.

Here is the only other three set match.

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After having won one set in 6-4, Anderson-Thurber lost the following sets in 7-5, 6-2 to a pretty good team: Mason-Syren.

Pownder-Speed also had the pleasure of a victory by default over Maddox-Adams. This time, Mr. Adams caused the team loss.

And in conclusion, there was the elimination of nine team losers. Too bad because, Abernathy Sport Goods Store and Folsom Tennis Shop have each donated a beautiful trophy to the winning team. The surviving teams will play for these trophies. Players eliminated in the first round are playing off a consolation tourney.

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Do you want a better job with more money in the aircraft industry?

Aoy manufacturers will tell you that there is a definite shortage of good superintendents, production managers, supervisors, foremen and group leaders.

The men who will get ready for these better jobs immediately are going to find big opportunities awaiting them—and will cash in a big way.

A Proven Plan Shows How

How can you get one of these opportunities? Easy enough—if you avail yourself of the "Lincoln Factory Executive Service," a plan that has already definitely placed a large number of men like you in good jobs and on the road to the better things in life. Your past shop experience plus the aid of this plan suffice to qualify you for one of these better paid jobs.

Find out at once all about this plan. An interesting 52-page book "Getting Ahead In Industry" has been prepared which describes the plan in detail. The book doesn't contain a "get-rich-quick" scheme or a "magic formula"—but it does outline a proven method by which honest, red-blooded men can step ahead into the good jobs that are waiting, without wasting their efforts or following false hopes.

A number of foremost factory managers are cooperating in making this plan available. Leading manufacturers approve it.

The interesting 52-page book mentioned will be gladly sent free to any Aircraft Man who is interested. If you are seriously looking for a better job—more money—and all the other benefits that just naturally follow—you will want to read this book. Write for your copy today.

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HULLaballoo

By Al Leonard

RUSS KERN, Hull Dept. inspector and mountain goat, has just returned from his vacation in the State of Washington. While there Russ took time out to scale Mt. Hood and Mt. Rainier. 'Tis rumored that the only reason Russ does all that mountain climbing is to enable him to keep one jump ahead of the Hull Dept. wolves. On his way back to San Diego Russ stopped at Frisco to see the Fair. As the hotels were all filled Russ says, he stealthily crept into one of the model homes on Treasure Island and slept there all night. The fact that he didn't have to pay for a hotel room no doubt made his vacation a huge success. He is now sporting a new pair of streamlined mountain climbing trousers which he says set him back \$4.95 (plus tax). "Dutch" Kline swears Russ got them at the County Morgue free of charge.

"Gibby" Gibson is wearing a big smile these days for he finally won his first Hull Golf championship. Gibson has been doggedly striving to win all summer and was finally rewarded when he shot a low score to cinch the championship.

With Tommy "Honey Chile" Johnson back in the Hull Dept., the champion Hull team is eagerly awaiting the start of the basket ball season. With an experienced corps of players, score-keepers, time-keepers, and the hottest rooting section in the plant we're all set to go. We hope the Purchasing team who gave the Hull Dept. a bit of trouble last year will be able to wheel in a team that will make things interesting.

George Landy covered himself with glory and other things when he caught the greased pig at the picnic last week. The pig which absolutely refused to enter into the spirit of the contest, gently lay down to sleep after being prodded out of his cage. He never knew what hit him;

about two tons of howling humanity pounced on him and proceeded to squeeze him to death. When everyone was peeled off the pile there stood Landy with a limp a piece of bacon in his arms as was ever seen. Landy was so covered with filth and grease that he was shoved into the cage three times before anyone recognized him. The pig, which was immediately named "Lulu" is now being fattened at Willy Roemer's Cactus Ranch.

All the events at the picnic went smoothly but one. Yap Yap Hopman raised such a rumpus when he was not allowed to enter the sack race for boys under eight years that he was ruled off the field. He was seen later chasing little children off the see-saws and making faces at Glenn Hotchkiss.



THE CONSAIR PICNIC

Yes, we attended the picnic

That The Conair gives each fall

But I think that the one on September ninth

The best one of them all.

The weather was quite pleasant

In spite of no sunshine . . .

But when good folks get together

They have a dandy time.

The setting was El Monte Grove,

With oaks so green and tall

And beautiful mountains on either side

Form a great protecting wall.

There were games to play . . .

And prizes too . . . for lucky girl and boy,
A baseball nine . . . a tug of war

For their elders to enjoy.

The greased pole . . . it was quite a feat,

And many tried to climb.

But only one succeeded . . .

He know how . . . all the time.

The greased pig . . .

It was awarded to the lucky one

Who was quick enough to catch

The porker on the run.

Refreshment too, was served all day . . .

And with a generous hand.

And I know that The Conair Folk

Treated everyone just grand.

To show our appreciation

For this happy, happy day,

Be loyal to The Conair

In all we do . . . and say.

Florence H. Delamater,

Sept. 12, 1939.

**"Hop" over to your nearest
Safeway "Cabin"**
and "lay in your stores" where you will
find Quality and Low Prices

SAFEWAY

**GAS WITH
DICK LAUSTED**

**CAUSEWAY SERVICE STATION
3800 INGRAHAM STREET**

**Oil, Batteries, Tires
Accessories**



Snapshots Consolidated 1939 Picnic

1. Walter Derby of wings slipped in early . . . was caught in the act by B. Santi.
2. Photo by B. Santi of wings.
3. S. D. Whittaker, D. C. McDougal . . . egg tossers par excellence! Stan Marcyan.
4. Ruth Eisman.
5. "At the Bar, At the Bar, where I . . . etc." R. A. Lambert photo.
6. Mrs. D. Hightower, Miss K. McKay, Mrs. J. M. McCartney, Mrs. H. Liegel. E. Backhaus photo.
7. A. More of the gang under the trees. R. A. Lambert.
8. "Gill" Lance, and some of the crowd. B. Santi.
9. Oh, oh! There goes the greased pole contest winner!
10. Jim Patton smacks a homer in the baseball game (?).
11. Miss June Paige, girl's shoe race winner.
12. Bert Bowling in action. Stan Marcyan.
13. "Whoops! I won!" Champion nail driver Mrs. Bearss. Marcyan.
14. Shoes in a mess. . . .
15. "Hear Ye, Hear Ye! All little chilluns what is lost . . . jest don't you fret . . . you'll find yo' mammy and pappy over by the beer kegs!" Marcyan.
16. End of Women's Measuring Contest. Lambert Photo.
17. Greased pole dirty work that didn't work!
18. Some doubt here but believed to be Miss Frances Buckley, backward race winner.
19. "Father" Coughlin running the lost children department.
20. Dick Senn and Savage . . . fastest pie eater uppers. Marcyan.
21. "Cap" Kogler, the Cad. plating tarzan.
22. Miss McCabe, soft ball throw winner. Stan Marcyan.
23. Hey, who chucked that egg?
24. Jack Bearss, Otto Bendt, Paul Schrenk, Nick Tuevesky (clown).
25. Dick Cole of wings snapped by B. Santi.
26. "Dad" "Beeler" Sheppherd and the rescue mission. E. Backhaus photo.
27. The Barrow race winners: Bowers and Butler.
28. Greased pig catcher George Landy. Marcyan.
29. Couple shoe race winners . . . Miss Dailey Humphrey and Mr. Jack Page.
30. Mr. Jerry Hall, boy's shoe race winner in full action. Marcyan.
31. Hare, Herb Ezard, Scratchy Ernest (?), Red Ernest (?), Mrs. Harry MacFwan, Harry, George Landy, Miss Marshall, Miss Hotchkiss, Miss Marshall, Miss Marshall, Cole. Photo by Hotchkiss.
32. Geo. Wire, A. M. Milligan, Roy Coykendall, Al Ambrose, Lloyd Bender, etc., at the bar. Hotchkiss photo.
33. "Oh, Boy, what a crowd!" B. Santi.
34. 3-legged racers . . . Misses O'Neil and Schlegenhauft. Marcyan.
35. Bob Mussen, Ray Kendall, Roy Coykendall, McGiffen, Tommy Butterfield, snapped by Glenn Hotchkiss.
36. Leo Bourdon comes up to bat.

PRODUCTION MINUTES

By "Brad" Bradshaw

BELIEVE it or not folks, but at last there is ice in sunny California, and many a *Consolidator*, wife and sweetie, made use of it the other night at Glacier Gardens (without scotch and soda); and if the good old "bustle" was still in style, there would be many a "chassis" in much better condition. One of the promoters, Ed Kellogg, arrived late with a weak alibi. "Stopped for a milk shake," says Ed. Ice cold milk before a skating party, not so good, and besides that gleam in his eye eliminated all doubt of his washing those dishes to pay for the drink. Bill "Sonja" Wiley, by his most ungraceful manner of reclining on the ice, almost broke up the party. At least the cracks he made were large enough for Tom Coughlin to fish thru during the evening. Tom Eckles, forgetting the difference of several cubic inches of foot tried to "glide a la Henie" between two unsuspecting females and found there was not room for his "dogs", so the girls landed quite unladylike on the ice. Howard Bell wrapped in a muffler, overcoat, and gloves,

viewed the maneuvers from the sidelines along with Tom Coughlin, while their wives performed. This at least proves who "wears the skates" in the family. Says "Howie," "With Luppke's and my feet on the same pond, who else is going to skate?" Al Fink, when finally caught by the attendants, was graciously "bounced." "I was a bit too good for 'em," says Al, "so they put me off to save their face." Harvey Muck, Eddie Ehbert, Al Ballard, and Frank O'Connor expected to have a night out but found the little wives zooming right along and too good on the ice to be given the slip. Some others more modest and less bruised were, Liddle, Owen and George Candee, Rosenthal, Farnsworth, Russ and Paul Gaughn, Dake, Tuit, Kerns, Gilchrist, Abels, Seligman, and a flock of good-looking females that the smart guys didn't introduce.

The elusive deer is in for a tough season as *Consolidator*'s big game hunters go after that three-pointer. Jack Thompson is doing his campaigning in Canada. The "Hotchkiss Caravan," including "Dead Eye" Cora Hotchkiss, "Cannonball" Roy Coykendall, armed with a bag of softballs, Mr. and Mrs. Harry McEwan, Ray Kendall, Hap Forsythe, and George Landy are due to return as this goes to press. Be sure this DEER meat is looked over carefully as we know they took two "jacksasses" to carry the supplies, and we haven't learned if they were checked back in. "Army" Armstrong is giving them the horselaugh as he claims to have gone out a few hundred yards from home and bag-

ged his three-pointer. Al Ballard is giving Army the "Third degree" since the zoo inventoried one deer short. Al also claims that Army shot so many times and ran the deer so far that it died from sheer fright and exhaustion.

Perry Ogden wishes to advise that his list of applications for motorman on the new electric truck purchased for the stockroom is now long enough to supply a man for the job until "Buck Rogers" takes over in 1950 with a new type vehicle. August Zollizze, veteran engineer of the transportation line since it sprang from a two-wheel push car affair to its present status was low in spirits when interviewed concerning this "new fangled horseless carriage" that has replaced his vehicle. Says Zollizze, "I feel just like the horse when the automobile was invented, 'taint fair. I have been training two of my goats to do the job, but the union objected to the odor. It's humiliatin'!"

Owen and George Gandee, two (West-By-Gum-Va) lads that have made good despite the handicap of wearing shoes and deprivation of "moonshine likker" and "squirrel gun" received a letter from one of their uncles written in 1917 and just reached here via grapevine and oxcart. It read in part, "Thet thar Kaiser feller kin drap them bums from his airplanes on London tower er on New York er Was-ton ef he has a mind to—but if he ever comes a-nozin-around these hills—right thar'n then—by gum—we'uns air shore gonta commence feudin agin thet critter!" Under the present conditions if the old boy ever gets another newspaper he will think the war is lasting quite a spell.

Red Robbins and Hank Golem are still hitting the clock neck and neck, and in the nick of time. "A minute earlier and I would have had my car in the usual spot whre the truck that 'ran amuck' would have reduced it to a nice load of scrapnel," says "RED."

The mystery of the "lost lunches" was solved along with the mystery of the added avoidupois to Dan Clemson's waist line.

Russ Gaughn was not caught by the Ku Klux Klan but merely had a skin ailment that infected his neck.

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to CHICAGO

Through skysleeper Los Angeles to New York

GUS' PLACE

5049 Newport

Ocean Beach

"Where Everybody Goes to
Eat and Drink"

Dan Miller is going to out maneuver Captain McManus and hold all the strategic points of advantage in the war if the Captain don't start an offensive soon.

Jake Deitzer in changing the requisitions is leaving a line for the dispatcher to write down their unspeakable remarks when they cannot get the stock.

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STANDARD OIL COMPANY OF CALIFORNIA

DRIFTING THRU DRAFTING

By Bouley

SEAKING a retreat from the sultry summer season we purchased a weekly pictorial publication and settled down to look at some war photos. After a near fruitless search through page after page advertising a certain commodity, we finally found several battle pictures sandwiched in somehow by some clever contriving on the part of the editor. After that we must have dozed, for suddenly we were confronted with the horrible spectre of our column in the *Consolidator* also being supplanted by another ad for the new wasp-like corsets. So once more we meekly don the eyeshade and pound the keys, eager to contribute our humble efforts toward the saving of civilization.

Getting back to the war situation, it is amazing to witness the frenzied efforts of some of our people to stay out of it all. Since he is an old crony of Gramp Moershel, we had rather fancied that Ken Whitney would feel secure from possible

conscription. But apparently one is only as old as he feels, for a very strange chain of events surrounds Ken's recent conduct. Two weeks ago he cancelled a golf match and was seen on the same morning pushing a baby buggy around the Zoo. He was next observed emerging from a store that handles women's shoes only. And of all things, our most trusted operative spied him in a millinery shop just last week. Maybe we should have let that ad get in after all.

The Fuselage group's James "Fibber" Magee evidently decided to be known as the coolest cucumber from the calefactory clime of California to the cudent cauldrons of Calcutta, and sacrificed his sartorial splendor to save the salty saturation of his skin by the simple expedient of rolling up his trousers to the knees. He refused to be interviewed and all efforts to have him answer a phone call in the stenographic office were in vain.

Dick Robbins, whose famous pipes lend a Sherlock Holmes atmosphere to the drafting room, ditched the Meerschaums for cigars last week in honor of the birth of his third daughter, Athalie Ellen.

Johnny Stephens went out this last month and finally got an excuse for moving from the old Albatross street boarding house by getting married. His cherubic countenance, which continually casts a glow of warmth over the serious demeanor of the Loft, is still very much in evidence, so we imagine that the calories are of the best.

Since the pictures were published of the houses of various *Consolidator* employees, many queries have come in concerning the Zerbe Lodge. The official measurements of the living room are 12'-6" by 9'-9". There are no other figures available for release at this time because the rest of the rooms are not in the building program. As soon as we learned of the spaciousness of the place we adroitly

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SMILING
ASSOCIATED
DEALER



Selling
Aviation Ethyl, "Flying A"
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Let's Go ICE SKATING!



- Mornings 10-12:30
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Adults	40c	55c
"High" Students	25c	40c
Children under 13	25c	25c
Spectators	25c	25c

Daytime Evening

SKATES
Rental 25c. Special morning rate for
High students and children 15c

GLACIER GARDEN Foot of
8th Ave.
Competent Instructors Available at All Times.

WOOD SHOP CHIPS

By J. E. Hodgson

ONCE more the bowling season is here, when you will see strikes without labor trouble, sparring without giving anything, and splits without anyone separating. You plan in or on the "Alleys" but it is no hole and corner business at all, but open for all to see. Well, the Wood Shop is entering a team this year after a layoff of two years, so watch our dust, "or sumpin."

Speaking of hobbies, Harry Walter evidently does not get enough work at pattern making during the day, so he has rented a shop and installed woodworking machinery, so that he may indulge himself after working hours. Harry, by the way, has constructed some beautiful model boats and is working during his spare time on a miniature gasoline engine for one of his models.

Unfortunately, I was unable personally to attend our *Consolidator* annual picnic this year. By all accounts, however, everyone had a swell time, except for one item on the program, namely, the greased pig contest. Several of the boys, and I don't mean sissies, spoke to me of the affair and voiced the hope that such contests be left off the future programs, as a baby pig cannot compete with the equivalent of a football squad. Let's have lots of sport fellows, but keep it humane.

Larry Ireland and Boyd Robinson had it all arranged to win the egg-throwing contest by substituting a wooden egg, but whether it was conscience or cold feet they didn't make the change. Naturally it was all to be in the line of fun, not with any idea of taking a prize.

Congratulations are in order for Bob Harshaw on his marriage, which was solemnized September 1st to Mrs. Lela Tabor. All in the Wood Shop wish Mr. and Mrs. Harshaw a long, happy life together.

eked out an invitation for an open house for the entire engineering department, including Graham McVicker, at some future date. Some of the Western boys will then get some ideas about solitude in a New York subway.

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San Diego

COUGHLIN'S COUGHINS

The Engineers held their monthly Golf Tournament at the San Diego Golf Course in Chula Vista and a good time was had by all even if the weather man and the deer hunting season had to interfere.

Below is a list of the winners in each flight:

1ST FLIGHT

Low Gross—Hemphill, 78.
1st Low Net—Sheahan, 80, 11—69
2nd Low Net—Coughlin, 91, 19—72
Robbins, 90, 18—72
Meer, 82, 10—72

Low Putts—G. Gandee, 30.

2ND FLIGHT

Low Gross—Seaman, 95.
1st Low Net—Weber, 93, 23—70
2nd Low Net—Carlson, 97, 26—71
Loyka, 95, 24—71
May, 93, 22—71

Low Putts—McGuiness, 30
Carlson, 30

3RD FLIGHT

Low Gross—Stacy, 101
2nd Low Net—Rosenbaum, 106, 32—74
Kimball, 119, 45—74
Morrow, 119, 45—74

1st Low Net—Hall, 111, 45—66

Low Putts—Whitney, 38

The next Golf Tournament will be held at the La Jolla Country Club on October 22, 1939.



Character is power—is influence. It makes friends, creates funds, draws patronage and support, and opens an easy way to wealth, honor and happiness.



Man never seems to realize that the follies of youth are drafts on age, payable with interest twenty years after date.

Bowling

The Engineers Bowling League will bowl on Tuesday evening starting October 10th, 1939. For information see T. J. Coughlin, Loft Department.

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We gladly make arrangements each week to offer you this friendly free convenience.

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Every automotive need can easily be taken care of in one of our 20 fully equipped departments in either of our two stations.

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Our very easy budget terms made available to you on all tire, retread and battery sales with only your "white slip" as identification. No delay—immediate service.

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Routine Flights Model 28 Flying Boats

OVER LAND OR SEA

Consolidated Model 28 flying boats daily establish new records

Date	From	Miles	Airplane	Miles	Time	Number	- Number
	San Diego to					Airplanes	Men
1/28/37	Pearl Harbor	2,553	30,636	21H 43M	12	80	
4/13/37	Pearl Harbor	2,553	30,636	21H 21M	12	80	
6/21/37	Coco Solo	3,087	37,044	27H 58M	12	84	
6/24/37	New York	2,700	2,700	17H 3M	1	6	
8/ /37	Polar Area	19,000	19,000	.....	1	5	
12/ 3/37	Miami	2,300	2,300	14H 10M	1	8	
12/ 8/37	Coco Solo	3,087	43,218	22H 20M	14	98	
1/19/38	Pearl Harbor	2,553	45,954	20H 30M	18	127	
2/26/38	Miami	2,300	2,300	12H 35M	1	6	
6/ /38	New Guinea	7,178	7,178	.....	1	6	
8/31/38	Coco Solo	3,087	43,218	26H 40M	14	98	
9/ 7/38	Pearl Harbor	2,553	43,401	17H 17M	17	119	
1/11/39	Coco Solo	3,087	148,176	25H 43M	48	336	
6/28/39	Pearl Harbor	2,553	38,295	16H 17M	15	105	
6/ /39	New Guinea to San Diego via Australia, Indian Ocean, Africa, Atlantic Ocean ..	24,130	24,130	.....	1	..	
7/ /39	England	5,750	5,750	.....	1	4	
7/ /39	New York to Europe and return (3 flights)	24,300	24,300	.....	1	..	
9/14/39	Pearl Harbor	2,553	35,742	.....	14	98	
9/ /39	Pearl Harbor to Philippines	5,586	78,204	.....	14	..	
				662,182			



CONSOLIDATOR



One of Our PBY's Escorts the Steamship Iroquois Into New York Harbor (Wide World Photo) See Page 1

NOVEMBER • 1939

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SAN DIEGO
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CONSOLIDATOR

Volume 4

November, 1939

Number 11

NOW COMMANDER

Official word has come through, advising of the promotion of our Chief Navy Inspector, Roland Mayer, from Lieut. Comdr. to Commander. Congratulations! We know that the promotion in rank is fully deserved, as his career has been a long one of outstanding performances. Commander Mayer has been stationed here at *Consolidated* since June of 1938. He first became associated with aviation when he joined with Boeing in 1917. He teamed up with the Navy in 1918, and subsequently achieved both lighter-than-air and heavier-than-air pilot ratings. He has had some 6,000 hours in lighter-than-air alone, probably more than any other officer in the service. He was aboard on every flight of the airship Shenandoah, and, as a matter of fact, supervised its building. Was aboard when the airship was wrecked in a storm. He and his mates spent 1½ hours "free-balloonning" in the bow portion which tore loose from the rest of the structure and remained intact, and in which they happened to be at the time of the crash.



MODELEERS ATTENTION!!

Discussion is under way for the formation and organization of the Consair Gas Model Airplane Club. With such enthusiasts here as Elbert Weathers, a nationally known model designer; Jim Lay, past president of the San Diego Aeroneers; and Harold Strawn, a consistent 1st and 2d place winner at the Aeroneers' monthly contests heading the movement, this club ought to go places in a very short time. Those interested should contact Bill Gilchrist or any of the three above, so that the club can get started with a minimum of delay.



GOING STRAWN

The San Diego Aeroneers held their 12th monthly gas model plane meet on Sept. 25th. A plane owned by our Harold Strawn won first and second places by remaining aloft seven minutes, 52 seconds. E. J. Brown won third and fourth awards and Don Jones, fifth.

COVER PICTURE

A Naval Escort for New York-Bound Iroquois

At Sea—A view from the air of the United States Liner Iroquois (right background), picked up while en route to New York. On right foreground is a United States Navy destroyer, with a second destroyer on left, while a Navy *Consolidated* PBY completes the escort afforded the steamer carrying 776 passengers and crew from the European war zones. The streak at the right on the picture is the strut of the plane from which this photograph was taken. The Naval escort was given the liner after word was received by the United States government on Oct. 5th, that the Iroquois would be sunk when it neared the American coast. The United States officials, with the President's approval, sent a Naval escort to meet the ship which had sailed from Cobh, Ireland, on Oct. 3rd.



APPRECIATION

I wish to express my appreciation to all those who volunteered to donate their blood during my son's illness, and especially to Mr. Klenner whose blood was selected. I also wish to thank those who sent flowers and who visited my son while he was in the hospital. Together with many other kindnesses which were shown, I am sincerely grateful.

Signed: Mrs. Rose B. Terrill.



SKATERS

Final Assembly was represented by several prominent ice enthusiasts at the Skating Rink Tuesday, October 17th. Mr. and Mrs. Frank O'Connors sweetly sailed along together. Walt Panke back from "Opening" looked fine. Our good friend Jim Good did good; Al McGuire, near pro skater performed for Mrs. and son in the stands. We saw our old friend Sid Long brought his family and wouldn't you know it, Mrs. Long out-did Sid, while three-year-old Miss Long was showing Mamma and Daddy how to skate.

We observed that the squeegee boys at the ring worked unassisted since Eddie Birch did an excellent job of staying on his skates. Oh yes, among the stand fans we saw Mr. and Mrs. Jacobs studying the fine points of maintaining one's equilibrium while on blades, and by the gleam in their eyes they will try it next time.

No. 7013.

ROBIN HOODS . . .

About six weeks ago an Archery Club was formed when seven enthusiastic Bow fans met with four guests at the house of R. Kern, where an afternoon of fun was had trying to hit a target at 60, 90 and 110 yards. No heavy scores were run up but the fun was started and another meet was held at Crow's Archery, 1131 Broadway, where some real shooting was done.

J. Schreiner hit six Bullseyes and broke 12 Balloons out of 36 shots. The following score was turned in:

Bullseye

1386	J. Schreiner	18
7005	C. Gilchrist	6
1003	R. Kern	4
5033	R. Kendal	4
1305	Giesselman	4
	Mrs. Jackson	4
4032	Jackson	3
3450	L. L. Klus	3
4173	V. Marten-Cohen	1
	W. A. Sandford	1
7119	Les Crawford	1
	Mrs. Giesselman	1

The following committee was appointed and a shoot is to be held about every two weeks: Ray Kendal, Russ Kern, V. Martin-Cohen, J. Schreiner, Instructor.

All who are interested in Archery please come and give the Club a boost. Some good times are ahead for those who would care to try a hunting trip and shoot animal targets. For further information contact any of the committee or Bill Gilchrist.

Tuesday, November 7th is
election day. Be sure to cast
your vote.

Just a wee bit late to note for the October issue, was a long fine letter from our fellow-worker J. Frank McDonald, who for the past two years has been rather ill and confined for the most part to the hospital. Frank was very complimentary in his praise of his fellow-workers. Thanks a lot, Frank. Frank is at present at the Vauclain Hospital at the end of Front Street.

HOT SHOTS FROM WELDING

By Willie "Winchell" Hartman

THE night of the "big blow" last month sure cramped the style of a lot of the boys. Frank Kastelic and his missus had a glorious time running from room to room closing windows, etc., and the last window blew out of Frank's hands and smash. Vic Perry lost the roof off his house, and Kurt Kruger had to have a rowboat out at his ranch. He lost all his figs and the mice were frightened to death—how about the banties, Kurt?

Someone told Keenan that a moustache was a good lightning conductor so he shaved at long last.

Best of all though, was our newlywed, De Remer. Imagine a new bride afraid of a thunderstorm—um well!

Bowers says, 'twarn't nothing. Where he comes from "them's just little drizzles." He says, you really get thunder when it

curdles the cream and turns it black. Oh yeah!

No wonder it rained. Art Bommer had just spent two days putting a glaze job on the jalopy. That's what you get for putting on the dog or something.

If Goodbody ever misses with that sledge hammer it won't be so good for anybody.

Gus Fougeron has moved lock, stock and barrel across the aisle to the bleachers. Well we hope you don't get sunstroke Gus.

And speaking of Gus, he sure is taking it on the chin while waiting for his store teeth. Anyone else offering him peanuts better be able to run fast and loose.

Now that Vic Perry has himself a doghouse we expect to hear more from "Tuffy" the pooch.

In our midst is one intrepid hunter. He has been hunting now for several years. Every fall he packs up whenever he can and hies himself to the hills looking for deer. Recently he thought perhaps his bad luck would change if he had some help. So once again he packed up his outfit and invited one of our lesser known hunters to join him in his hunt. Now, thought he, we shall surely get us a big buck. So out they started to spend all week-end hunting—hunting ever hunting. But did our hero get a shot at any venison? Alas and alack—no. But the lesser known hunter got himself two, not one but two, big bucks the first time out. Moral—never invite a farmer to go out hunting with you!

Well we finally got those cigars De Remer promised us after a month of wedded bliss.

And speaking of cigars, we are due for more of the same, for Homer Higby, our keeper of the bees, went and got himself a new Queen, so now Homer spends all his time with his honey, namely Ethel Kimball who will keep the hive for her "King bee" ever after at 43rd and Wightman. Congratulations Homer and Ethel.

Brownie says the next time he goes to play badminton with Kastelic he's going to stay home. Tough game, Brownie, especially for parlor athletes.

Speaking of names, "Dichlorodifluoromethane" is simply a degreaser.

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MACHINE SHOP OIL

By Matt Wielopolski

Bob Carson, machine shop tool crib, will take on any sporting bet—that is, if there is a fifty-fifty chance of a get. Just like a let in tennis, another chance.

Nick Touvesky, Consair's Russian Troubadour, hasn't a thing on our Harry La Bar. It is a well-known fact that the French are noted for their grand opera and fine song, and Harry is proof of this fact. Yes, siree, Mr. La Bar can hurry up and down a musical scale that rates second only to Kenny Baker or Nelson Eddy.

Wonder what Bill Liddle will say now about his car—not much I 'spose. Especially when he sees Bob (Jitters) Thompson's 1939 convertible (*black*) top on his 1937 Buick and with a 1940 (beautiful too) Blonde. What's her name, Jitters?

Where is Elmer? ? ?

Out _____ for some stock, of course.

Well did'ja ever see Mr. Golem's four clerks rushing (not blondes either) to and fro? That's shortage, Elmer.

Casper Costello, second shift Machine Crib Keeper, is no relation to the famed Costello family of the movie screen. So, boys, get the idea out of your heads that he takes up stage work (it's too heavy). Incidentally, Mrs. Toots Costello and Mr. Casper Costello (again, no relation to the cartoon couple, Toots and Casper) are proud of the West, because it is the best. Did'ja know that—

John McDonald's Washington University (Seattle) education was cut short because of the 1916 war?

Elmer Buschbaum, is a law graduate of Washington University (St. Louis)?

Bob Holmes once was a math major at San Jose State College?

Yours truly majored in English at San Diego State College for nearly two years?

Bob Ramet, of cutting department attends San Diego State College during the day and works at night here in Consolidated?

Ray "Pop" Felton is a master of the old school, "School of over a half of a century, Experience?" Keep up the good work, Pop.

Earl Conniry once said that you can't beat the quality and quantity of work of that one machine—The Murchey Threader. However, Don Benson, the Leadman says, "two machines will outdo any one."

From reliable sources we hear that Ray "Pop" Felton may join the upper-crusted gourmands (one who delights in luxurious food) society of Southern California. However, John Howard is the best connoisseur (aesthetically, a critical judge of the finest liqueur).

WING KEYHOLE

By Browne

Jack Maier, of Wing Inspection, after sojourning in the cold country of Seattle, thought he would come back to *Consolidated* and thaw out. Welcome home old man!

Frank Heidemann claims to have definite proof of the team of Rock Island, Illinois, High School played opposite U.S.C. two weeks ago.

Vic Atkinson and Harry Birse of Wing Inspection certainly keep the boys jumping. Ask any leadman! O.K. Steve S.

Tod "Pete" Carter received his money's worth on his latest haircut. If the barber had clipped a trifle more Tod's head would look like a billiard ball. Army Armstrong says if Tod would shave his head it would save both Tod and the company money, as he could list all his shortages thereon. Think it over, Tod!

After extensive traveling which included a trip to Buffalo, we see Joe Setter (formerly of the mill) is back with us in the wing department.

What has happened to the Wing bowling team? We had a crack team last season. Let's have another this season, fellows let's turn out.

Art Hughes, recently got up one night to close a bedroom window. When he returned the bed was gone and so was Mrs. Hughes. Art explained it was a folding bed and his wife had been held in its clutches when it closed. Better tie the bed down, Art.

Army Armstrong's first deer hunting trip was heard from all over the shop. His second trip was kept very quiet. This is why: Army, high on a hill in the brush, saw a deer going down in an awful rush. Bang! Bang! Army's 44 nine times it did speak, the deer looked around and let out a bleat. While Army himself, did get on his feet. The deer still running a safe distance away turned around to Army and this he did say, "Tough luck old marksman and maybe better luck some other day." P.S. You should have heard what Army did say. My! My!

Myron Drake, of the Wings, has left to accept a job at North Island. Myron is well liked by all who know him and they wish him the best of luck in his new position.

Stan May and Steve Smith were seen Friday, October 13th, at midnight leading a dog down El Cajon Blvd. Why these two picked such a late hour to take a dog for a walk we do not know? Maybe the dog was taking them for a much needed walk. Oh! Oh!

All Ballard of Sheet cutting must be a

HULLabaloo

By Al Leonard

FRANK POP recently surprised his wife with a new washing machine. When the machine was delivered Frank, who is mechanically inclined, proceeded to give his wife a demonstration of how the machine should be handled. All went well until he came to the wringer. When he turned on the wringer he was startled by a shriek from his wife. She had her hand in the wringer when it was started and it was drawn in. Frank became flustered and instead of releasing the wringer he threw it into reverse and rolled his wife's hand out again. After first aid was applied Frank was told a few things that had nothing to do with washing machines. Now Frank says the old-fashioned wash boards are much better than these new-fangled machines.

Russ Kern the head Hull inspector, who practically lives in the 'phone booth, was heard complaining about the new seat in the booth. It seems that Russ' feet just can't take it any more after all the abuse he gives them climbing all the mountains on the west coast. After the seat caved in under him for the third time Russ gave up in disgust and put a red tag on it.

Glenn Hotchkiss' annual hunting expedition reports all quiet on the western front. The only casualty on the trip was when Harry McEwen saw his first deer. Harry was so surprised that he had another one of his swooning attacks. He cut his head in the fall and was given a first aid haircut by Glenn who no doubt does not have a Barber College diploma.

good Christian. Al says his prayers have been answered. Recently I heard Al utter a prayer and in less than two minutes it was answered right in the shop. Al's "halo" must be under his hair instead of over his head. The only halos I have seen in the sheet cutting dept. are the circles cut out of dural.

If Jackie Horner would stay in the corner, of the Tail Dept., the dispatchers would be very happy. Every time Jackie sees one, he hollers "where are my parts." The dispatchers answer, "coming up on the next truck, of course."

"Tis rumored that Glenn brought back a small fawn and locked it in his garage. When the hunting season opens next year Glenn intends to open the garage and chase the deer out and shoot him before he can get out of the yard.

Harry redeemed himself last week though, when he brought back two deer which he killed near Warner Hot Springs. Harry crawled 300 yards on his stomach to get a shot at a deer. When he got close enough for a shot he found out that he was stalking a jackass. The two deer which were hidden in the brush watching Harry's strange antics, felt so sorry for him that they stepped out and begged to be shot, which he did.



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Facts About the Femmes

By KATHLEEN SCHNEIDER

ALL trails lead to Buffalo this time of year. Lucille Fisher, at this writing, is enjoying a three weeks' vacation going to her old haunts in this "well known among *Consolidators*" city. Lucille will have lots to tell us when she finally climbs down out of that airplane and gets back into harness.

Our missing Fisher didn't shuffle off to Buffalo—she flew there. We don't worry about her safe return as long as the pilot flies the plane "low and slow", and watches out for feminine plane drivers and their signals.

Another vacationist just returned from Buffalo, is Arlene Golem, wife of our Traffic Manager, who paid a visit to her family and friends in the east. From all reports little Sharon Golem had a lot of fun on the train. We hear she made quite a hit with her fellow passengers.

We welcome Mabel Gilman back to the Navy Office after an extensive vacation in Minneapolis. Mabel reports that she had a grand trip and is ready to tackle the typewriter keys again.

Leta Davis had a very enjoyable vacation recently in San Francisco. She took in the sights on Treasure Island and visited a former *Consolidator*, Odessa Krause.

The girls' column wouldn't be complete without a wedding and this one is no exception. Wedding bells will ring Sunday, October 29, for Lillian Griebner and

Art Thurber. Lillian is a former *Consolidator*. Art is a member of the engineering department, and Carl Griebner, who will proudly escort his daughter down the aisle, is an old-timer in the purchasing department. No doubt about it, this will be a 100% C.A.C. wedding with many *Consolidated* friends present to offer their best wishes and congratulations.

If Mr. Koenig's car refuses to operate, he can blame it on the amount of feminine weight it pulled up several hills recently at noon. Grace acted as our chauffeur and the "Koenig Kadillac" took a beatin' that day.

Lee Johnson is a brave person to ride home in the evenings with so many gents, and we want to advise her to shout out the window if they don't give her 'nuf room.

A round of applause to our newly-painted walls—and a hearty kick to the person who wrote on part of them.

Another newcomer in our midst is Betty Jean Melchor who has joined Mr. D. G. Fleet's office. Jean is running Grace Koenig a close second for the title of smallest girl at the plant. Neither Jean nor Grace, in their stocking feet, reaches over the mark of 4' 11". These two little "in-finks" must envy us tall people. How's about it?

People we don't envy—those brave souls who try out for jobs under the watchful eyes of everyone within sight. Particularly the young lady applicants; they really get



a close scrutiny from the sharp-eyed lads of a certain department. Guess who!

We miss Jane Dunn from the accounting office, and we'll be glad to see her back again after her recent illness.

Latest sport notice: Badminton popularity on the wane. Swatting flies at *Consolidated* taking its place.

—and a colorful signboard of Santa Claus reminds us it'll soon be time for our Annual Girls' Christmas Party. From former experience this is an event long waited for. Maybe we can get a return engagement of Louise Girodon's Spanish dance and other impromptu hi-lites of last year's get-together.

Irma Robbins and Lucille Fisher, our party committee, are tops when it comes to arranging this annual affair. Each year they plan a nicer party, and if such is the case, this year is bound to be super-special.

Each year we have a larger attendance at this femme frolic. Maybe this time we'll have to rent the City Stadium. We hope the new girls with us this year will be able to attend and will enter in our Christmas celebration.

The Maintenance department, the purchasing department, and black V8 coaches go very well together. Keep up the good work, "Jonesy."

TUBE BENDERS

By Dan Whorton

It has come to our attention lately that Norman Freakley has a nickname—The "Silver Fox." Ask Norman the origin of his nickname and he will be happy to explain.

Slim Franklin has been taking diving lessons lately. How are they coming along, Slim?

The Tube Bending Department has a bowling team consisting of Bert Freakley, Norman Freakley, Ham Molleur and two other fellows not in the department. It seems that the only time our stars can bowl is in practice games. So says, Bert Freakley of Norman and Ham.

The Tube Benders have decided to get Bill Plessiere a cap to wear while working so that his hair won't fall into his eyes and annoy him. His new name is Curly.

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701 "C"

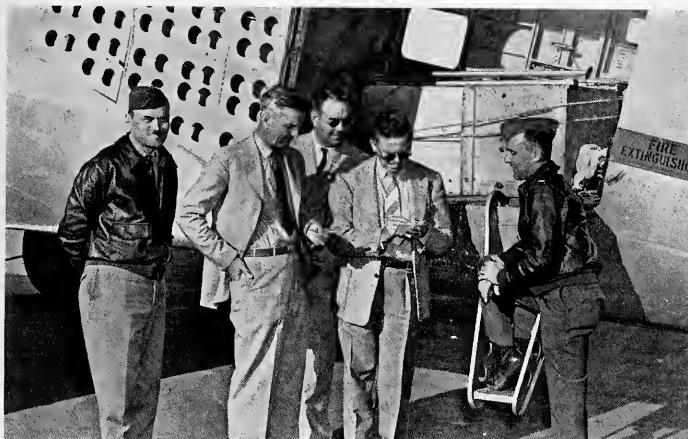
We manufacture our own Fur Coats and thereby can better guarantee their correctness and durability.



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Joseph Noonan

701 "C"



Lt. Glenn Holland, Major E. R. McReynolds, Army Air Corps Representative for the San Diego Area; W. G. Chamberlain, Service Mgr., Pratt & Whitney Aircraft Corp., East Hartford, Conn.; Vice-President Edgar N. Gott, and Lieut. Thomas J. Schofield, arranging for the details of unloading the two "flown" but unused engines.

ENGINES—HOT FROM THE FACTORY

THE Materiel Division of the U. S. Army Air Corps demonstrated how it can expedite the work of aircraft manufacturing plants in times of necessity by a gesture of cooperation which will materially speed up the work on our new four-engined bombers being rushed to completion and the test flight stage. The Army Air Corps air depot transport airplane C-39, flown by Lieut. T. J. Schofield, Pilot, Lieut. G. A. Holland, Co-Pilot, and Sgt. H. L. Fagley, Crew Chief, alighted at 3:30 p. m. Oct. 13th, on Lindbergh Field, with two powerful new type engines aboard as cargo. These new engines were brought west in a fast aerial trip from the Aircraft Engine plant of Pratt and Whitney in East Hartford, Conn.

In a nicely timed manoeuvre, the brand new engines emerged from the maw of the flying craft, were placed aboard factory motor dollies and rushed into the plant to the awaiting new bomber with scarcely a moment's delay. These engines, of a new design, had scarcely had time to cool from their production processes before they were stowed aboard the Army plane for their unusual trip west.

These two "flown" (but unused) engines constituted a load of about two tons for the transport carrier of the air. This was only a partial load for the plane as it could have carried more engines if necessary. Only two engines were immediately needed. The two additional engines for the new *Consolidated* bomber probably will be ferried out in a similar move by the Materiel Division while this issue is going to press.

WOOD CHIPS

By J. E. Hodgson

Once again John Woodhead, Sr. comes into the limelight due to his ability as a rough water swimmer. On Sunday, Oct. 15th he participated in the race from Newport pier to Balboa Pier over an estimated course of $2\frac{1}{4}$ miles. In taking first place among the veterans, he took 1 hour, 14 min. and 32 sec. to cover the distance, and was only five minutes behind the leader of the younger classes of swimmers. "Pretty good Johnny, but stay away from 'them there Mermaids!"

Larry Ireland has just returned from a flying visit to Buffalo and vicinity, mostly vicinity. On the way back he gave Bryce Canyon a "look see." The beauty and grandeur rendered him speechless, for a time. You should go there often Larry . . . how the boys would enjoy it.

You ought to see our (Wood Shop) skid-proof floor. That applied rubber makes it tough for our boys who love to skate over it. Anyway it is a great improvement when you can plant your heels down and keep them there.

Tuesday, October 17th, saw the Wood Shop Bowling Team start out on its career for the 1939-40 season. If a bad start means a good finish we ought to be up on top, as our beginning was about as bad as it could be. However, the season is very young, so we'll see what we will see. One certainty: we can improve plenty.

that the engines are of new type, and the airplane a new four-engined *Consolidated* Bombardment plane of advanced design, can be released.

Get the most out of a "buck" at WHITNEY'S

You'll soon learn that you can save money, time and steps by "trying WHITNEY'S first." 53 departments are completely stocked with a huge variety. They offer exceptional values every day in the year. Pennies saved on WHITNEY'S low, cash prices give you extra dollars for other use.

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SAWDUST & PAINT DROPS

By D. T. Berger, No. 974

(Maintenance—Carpenters and Painters)

Back in his own backyard.

After spending two weeks stalking the deer in Northern California and Oregon, Knute Knutson returned empty handed. A week or so later Knute got his buck while looking for wild flowers in his backyard.

Art Hubbard bought a new Studebaker about two months ago. He brags quite a bit about its beauty and performance, but we notice when it rains Art rides the bus. Isn't it rain-proof, Artie—or is it subject to rheumatics?

There has been a recent Scandinavian invasion of the Carpenter Shop. The invaders are Olson & Johnson. Yumpin' yimminy!

Charlie Davis is also a recent addition to Bob Biddle's carpenter crew. Welcome, boys!

Al. Tretsvan recently left us to return to his home state, Wisconsin.

E. Holliday is leaving us to work for Uncle Sam at March Field.

One thing about airports for flying boats . . . they're rather difficult to render useless by bombing . . . the holes fill up too quickly!



Rear Admiral John H. Towers, U.S.N., Chief of the Bureau of Aeronautics, Navy Department. Rear Admiral Towers was qualified as a pilot in August, 1911.

Note: Through the courtesy of Rear Admiral John H. Towers, and National Aeronautics Magazine, official publication of the National Aeronautic Association, a portion of Rear Admiral Towers' article which appeared in that publication in the September issue, is reprinted here. The article was entitled, "Naval Aviation and Naval Policy." The quoted portion is reproduced as it clearly explains the function of our PBY airplanes.—Ed.

"THE PATROL OR FLYING BOAT"

"There is another and very important aircraft type employed by the Navy, and that is the patrol or flying boat. This type is more widely known to the layman than either the carrier or combatant ship-based aircraft because of the many long distance mass flights it has successfully carried out and because of the commercial versions flying on transoceanic schedules.

"These planes possess a high degree of mobility in themselves and are the largest type used by the Navy. They are capable of operating over great distances at sea, of being powerful offensively and defensively, of being self-sustaining to a large degree, and of independently joining the Fleet at

a given time and place, ready to take part in whatever action may be required.

"The bases for these flying boats are strategically located, are self-maintaining to act independently or to supplement the Fleet in time of emergency. From these bases the complements of patrol planes are capable of scouting hundreds of miles at sea, carrying heavy bombs to attack any enemy vessel sighted, patrolling the oceans in advance of the Fleet, and patrolling the coastal sea lanes against attack on merchant vessels by enemy submarines and cruisers. The range of these planes and their efficiency may be greatly extended by the employment of surface ships of the tender class. With tenders, the corresponding number of planes, that is, about twenty to a tender, have greatly increased mobility, since the tender can seek sheltered waters and there provide the aircraft with the fuel and services necessary to sustained operations."

Barry Jewell of engineering was a pretty proud daddy when Miss Nancy Carol Jewell was born Saturday, October 14th . . . she has red hair . . . so has dad. She weighed 6 pounds, 13 oz. Tuesday a.m. when Jewell arrived at his drafting table he beheld a full "Line" strung with appropriate: Blanket, diapers, safety pins, bed pan, booties, crib sheet, rubber panties, teething ring, rattle, bath powder, clothespins . . . and even a cigar. Whether Dad's face or his hair held the redder hue was long a subject for debate.

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So You Want to Buy or Build?

By Albert G. Reader

Union Title Insurance and Trust Co.

BUILDING or buying a home is one of life's greatest adventures for the average family. Generally it is the fulfillment of ambitions and desires of a lifetime and a long step toward successful future. And because it will likely be the largest single business transaction the family ever will undertake, it is equally important that it be done properly. As in the building of a plane, a mistake can be tragic.

We purpose to tell briefly and simply the steps to take to safeguard your investment in a home of your own.

Your watch, your clothing, your tools, are personal property, subject to manual physical possession. You can pick them up and take them with you when you move. If you have possession, you are assumed to own them. Witness the well-known saying: "Possession is nine points of the law."

But real property, land and permanent improvement thereon is different. You can't put your house in a safe deposit box or carry it away in a satchel. Consequently it has been necessary to provide some means of establishing a record of ownership or interest in real property. This function of government is known as "the Recording System." Its purpose is obviously to provide a permanent public record at a central place where interested persons may find out that the rights they seek to acquire in a given piece of property are in fact what they will get. As between two parties dealing with each other, the signing and delivery of a deed or other instrument is all that is necessary to change rights between them, but the recording of that instrument in the proper public records is necessary to provide protection against third parties. By recording the instrument notice is given legally to the whole world.

Every parcel of land has been owned, transferred and retransferred sometime in the past. You therefore cannot forget the past when you deal in land. The story of its ownership as told in the public records must be searched out and studied. And to the family about to acquire a home, this is all-important. The whole security of that home will lie in having a clear unassailable title. Therefore when you acquire a home be certain you have good title!

In California it is possible to obtain from title insurance companies not only

a thoro search of the public records by experts in such matters, but insurance against loss afterward as a result of undiscovered defects. Moreover, title insurance not only insures you against defects in the record title but indemnifies you against loss arising out of defects not apparent on the public records, such as a forged deed, or false personation of a party to an investment.

Just recently the front pages of our daily papers carried a story about a deed to which the signatures of both the grantors and the notary public had been forged. It conveyed nothing as a consequence, but \$4500 had been paid out in the belief that it did convey good title, and had the lender of that money not been protected by the title insurance company he would have lost this \$4500.

Title insurance is your best assurance of a good title and your protection against loss due to a flaw in the title. Point Number One to remember in buying a home therefore is to *insist that the title be protected.*

(In our next article the subject of land titles and title insurance will be discussed in further detail with suggestions on how to handle the mechanics of your transactions so that you will be relieved of details and be fully protected all the way thru.)

Born to Mr. and Mrs. Stan. Whitaker of Engineering on October 4th at Mercy hospital at 10:30 a.m.: Miss Suzanne Marquette Whitaker. Weight: 8 pounds and 6 oz. All reported doing nicely, thanks.

There's an opportunity for someone in the fact that Wallace D. Hayes of engineering structures finds he must sell his recently acquired San Diego Flying Club membership.

BADMINTON

"Birds" are migrating once again—back and forth over badminton nets of the Municipal Gym (Balboa Park) courts, five of which are reserved for *Consolidated* employees, their families, and friends every Friday night from six 'till ten.

The turn-out for our first season's play was gratifying to all concerned. It was like old times to see the gang together again, whipping themselves back into form.

To those who became associated with our group for the first time, we extend a hearty welcome.

The Committee would appreciate the continued support of our program as it is to our mutual benefit, i.e. if we don't keep the courts in use our privileges will be forfeited to the general public. Need more be said?

Beginners and those wishing to improve their game are urged to contact any member of the Committee, who will be glad to offer instruction on Friday nights.

So break out your bats and brush up on your footwork. See you at the gym!

COMMITTEE:

Terry,
Henninger,
Lockwood,
Gilchrist.



Born to Mr. and Mrs. W. M. Basile of Final Assembly, at Mercy Hospital Sept. 22d, "a bonnie wee girl" weighing 7 pounds and 9 ozs. Her name, Delores Marie.

Winn
OPTOMETRISTS
SAN DIEGO

- EYES EXAMINED
- GLASSES FITTED
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GLACIER GARDEN Foot of 8th Ave.

Competent Instructors Available at All Times.

DIVING . . .

TH E versatility of *Consolidated* employees is a source of never ending surprise. For any task or emergency, there is probably someone in the personnel who is thoroughly at home with the work or the occasion.

A short time ago, when disaster suddenly struck the submarine Squalus on the east coast, qualified deep sea divers were immediately in demand. It will not seem strange then, to learn that one of our men volunteered his services. His experience fully qualified him for the work. He was Ward Henry Ryder, of Final Assembly. There are few divers who are qualified to work down to the 300 foot level. Ryder is one of them, and although he is no longer in the service of the Navy where he gained his valuable experience, he realized that there might be a scarcity of qualified men near the scene of the disaster. With the speed of airplanes to deliver him to the east coast quickly, he realized he might be of assistance and so he volunteered his services.

you a "Diving Manual" to study, and would take you out in a boat to where the depth of the water was about 60 feet and let you make about three or four dives. You were then what the Navy termed "A Qualified Diver." Being qualified you were entitled to receive \$1.20 per hour on any kind of salvage work, which usually was clearing propellers and rudders, recovering lost anchors and anchor chains and other articles lost overboard.

"I had been doing this kind of work for about two years when the Navy lost the S-51. I wanted to volunteer my services, but felt I had not had enough experience in diving from pump and at a maximum of 60 feet, to go out there and dive at 150 feet with compressed air from high pressure air tanks. I felt that at 50 and 60 feet I was taking about all the pressure I could stand.

"The effects of diving are somewhat similar to flying. If on your first airplane flight you are carried to 15 or 20 thousand



Ryder (right) recently inspected the G. A. Ney, a graduate of the same deep fine points of the equipment.

the Navy Yard, Washington, D. C. The Navy started this school about 1928 or 1929. All the Navy's First Class and Master Divers, and the officers who command the salvage ships and officers detailed

. . . AND FLYING

Fortunately there happened to be all the men that could be used, within a short distance, and Ryder was not called upon.

That Ryder should have changed from diving to the building of airplanes may at first glance seem odd, but today he's lead man on the beaching crew that handles our planes into and out of the water. Asked how he came to be one of the few men who are qualified for this work and just what the nature of it is he explained approximately as follow:

"I have had about 14 years experience in diving with the Navy. My first experiences were in the clearing of manila ropes and wire cables from the propellers and rudders of ships. In my early days in the Navy, when you signified your desire to be a diver, the ship's Gunner would give

feet altitude, the chances are that you will experience some rather severe pains in your ears. The same is true in diving. However, in diving, the change in pressure is much greater. For each 33 feet you descend in salt water, you have an excess pressure of one atmosphere at sea-level, or 14.7 pounds per square inch. And when you descend to 300 feet, which is the depth all First Class and Master Divers of the U. S. Navy are allowed to go, you encounter a pressure of 133.5 pounds to the square inch.

"To truly understand the effects that diving has upon the body and the discomforts it brings about, would require going into many phases of the physics of diving which might prove too tedious in the reading. However, I would like to state that most everyone seems to think at 300 feet, where the pressure is 133.5 lbs. per sq. in., that the pressure seems to crush you. Such is not the case. The ill-effects come from breathing air at about ten times the ordinary amount of oxygen, nitrogen and carbon dioxide.

"But getting back to the story, I continued my shallow diving until January of 1932 when, upon my own request, I was ordered to Deep Sea Diving School, at

as diving officers on the salvage ships, must go thru this school for instruction.

"Upon reporting, you are given a very strict medical examination, and only the fittest survive this weeding out process. Next you are taken to the decompression chamber where a Master Diver, who is an instructor at the school, instructs you on how to clear your ears and allow the pressure to equalize, and he takes you to 66.8 pounds pressure per square inch, or the equal of 150 feet of water.

"If you pass this test, you are then taught to dress, and tend a diver, as a uniform system is used throughout the Navy. You then start making dives in a big steel tank, filled with about ten feet of water. Around this tank several large ports are installed in order that your instructor can watch you perform your task, and advise you what you are doing wrong via telephone.

"In most all deep diving, the work is carried out by pairs of divers, so that you may assist each other. Before you do any deep diving however, you are taught the use of under water tools, which consist of pneumatic tools, gas and electric under water cutting torches and certain hand tools.

"The rubber suit, called the "dress",

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At the Destroyer Base, Chief Gunner der, is here seen discussing some of the

covers the body from the feet to the shoulders. A heavy strip of rubber is vulcanized to the dress around the shoulders, with $\frac{1}{2}$ -inch holes punched 9 inches apart to where your copper breastplate is secured by means of brass straps and wing nuts. The top of your breast plate and the bottom of your copper helmet have interlocking threads, and as your helmet is rotated to the locking position it fits flush with a leather gasket to keep the water from coming in. The helmet is fitted with a non-return supply air valve in the back, so that in case your air fails for any reason, you are able to retain the air inside your dress and helmet. A hand supply valve is secured to the breastplate and held with your left hand, as you regulate your own air when using compressed air. When diving from a hand pump, you use all you can get.

"The helmet is also fitted with an exhaust valve that you can regulate either by hand from outside the helmet, or by chin inside. The greatest skill, in diving, is required in being able to control your buoyancy by manipulating your supply and exhaust valves. It can be readily seen, that if you allow too much air to enter the dress, inflating same enough to give you a positive buoyancy, you are sure to come shooting to the surface. Once you start there is no stopping until you reach the surface, as your helmet raises above your chin preventing you from reaching the safety exhaust valve, and the air pressure has already straightened your arms out to where you can't reach either your supply or exhaust valves. Being blown up in this manner is the cause of more fatalities than anything else.

"If, on the other hand, you are for any reason unable to give yourself enough air, and your buoyancy becomes negative, you will descend too fast, and you'll get what is called a "squeeze." When this occurs you have just about as much speed toward the bottom, as you have in "blowing" and coming to the top.

"To help you keep control of your buoyancy and to keep 'head up,' you have a pair of shoes that weigh about 20 pounds each, and a leaded leather belt that weighs about 110 pounds. Your helmet weighs about 20 pounds, your breastplate 14 and the dress about 20, or a total of about 200 pounds above your own weight. With the aid of this weight once you are under water, you can remain at any desired depth. The helmet is fitted with a telephone receiver, and a transmitter. However you have signals that you jerk back and forth over your air and life lines, so that you can communicate with the surface, in case anything goes wrong with the telephone lines or they are inoperative.

"In your belt you carry your big diving knife, and contrary to the belief of many, it is carried to clear yourself in case you become fouled, not for protection. I have read stories of divers being attacked by sharks and octopuses, but I don't think much of any of them. I have made several hundred dives in all parts of the world, including the shark infested waters of Guam and the West Indies, and the only fish I have ever seen were a few small croakers right here in San Diego bay, and they were just as afraid of me, as I would have been of a shark.

"The helmet is also fitted with 4 small glass windows, in order that you may be able to see. However, just about 90% of all diving is feel work, as no light will penetrate muddy water, and even clear water gives you very little visibility.

"As soon as you are able to carry out your task properly at the school in shallow water, you are put down deeper, by closing and dogging the top of the tank, and by air pressure being built up over the top of the water. Thus any desired depth can be made, up to the tested strength of the tank. While working in deep depths you usually spend one week diving and the next week in the class room where you are not only taught the physics of diving and how to work out different problems in air, but have a miniature submarine salvage operation to carry out since submarine salvage is the main purpose of the school.

"The miniature equipment consists of a water filled tank about 6 feet long, 4 feet wide and 3 feet deep. A small submarine lies on the bottom. On the surface is the

salvage ship. This must be properly moored over the sub, using one anchor over each quarter, and one over each bow. Then you connect a descending line to the gun on the bow of the sub for the diver to descend on. The diver first connects the telephone connection with the sub and the surface, then the air and soup lines to each of the compartments. These are to keep the crew alive until you can raise them. Then comes the sinking of the miniature pontoons and the hooking on of the chains that have been snaked under the sub. As each air line is hooked up it is marked on an air manifold valve, so that you can tell just where your air is going. The water is blown from the pontoons and from the flooded compartments in this manner, and up she comes.

"The last two months of the school a sub is brought down from New London, Conn. The class then goes aboard the school's Diving Boat which is equipped in the same manner as a salvage ship, and each day the submarine submerges in water of about 150 feet while you get the actual practice on finding the different connections on deck and hooking up to them. During this period you are also taught how to operate the "Bell," which rescued 26 men from the now sunken Squalus, and at this time you are also qualified in the use of the lung.

After graduating from the school I was given shore duty at the school and assigned Coxswain of the Diving Boat which is about 85 feet long with a 21 foot beam. We were often called on for various jobs around Washington, such as recovering bodies of drowned persons, burning cables from propellers of tugs, raising sunken yachts, etc. In 1933 when the Pennsylvania R. R. lost its crack train the "Crescent Limited" in the west branch of the Potomac River, we worked night and day burning holes in coaches and assisting all we could.

"When my shore duty was completed, I voluntarily gave up my designation as First Class Diver, and requested duty on the then new carrier "Ranger," thinking of working with aviation. However, some of my hardest diving was done while on the Ranger. I recovered several crashed

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planes, engines from same, etc., and my biggest thrill from under water:

"This was in the salvaging of a wrecked BF2C1 that had crashed in a small bay outside of Norfolk, Va. The water was icy cold, as Norfolk was suffering from a cold wave at the time, and as the bay was land-locked from all sides, it was impossible to get a launch large enough to carry the pump and necessary equipment out to the crashed plane. It lay in about 20 feet of water, about 300 feet from the shore line, so it was decided to leave the pump on the beach, and to tow me out with a row boat, then drop me down alongside the ship. I was to remove the pilot first, then salvage the ship. As I walked cautiously along toward the plane in order to keep my air and life lines from becoming fouled, a bright yellow attracted my eye, which I made out to be the pilot's life jacket. My next two steps brought me close enough to observe that the life jacket still hung around his lifeless body. He had been killed so instantly, and the water was so cold, that he froze in the usual flying position: Left hand on the throttle and right hand on the stick, with his head looking out over the right of the cockpit. It would have helped me a lot if he had only been a stranger, but I had known and liked him very much. I fastened a rope around his shoulders and signaled the men in the boat to pull him up as I shook and tried to turn him free, but I soon realized that his safety belt was still intact, although I had tried to release it, but couldn't locate it. I signaled the boat

not to pull, while I rooted around and tried to find the belt. After locating it and releasing it, I tried to pull my head and shoulders back out, but soon found my helmet jammed in the badly crushed cockpit. I was afraid that if I turned my head or body very much I would unscrew the helmet from the breastplate and would drown before I could get clear. Many thoughts ran thru my mind on what to do. I decided that if the cockpit had been bent once, it could be bent again, so I started with all my might to pushing and pulling, but nothing went but my energy. I calmed myself a moment and decided to give the surface four pulls on my life line which means, "Pull me up—emergency," but I found that I was fouled, air line and life line, to the wreckage, and my inexperienced tender on the surface was pulling with all his might, trying to pull me up, after I had failed to answer the signals he had given asking me if I was o.k. The harder he pulled, the more he kept me jammed down in the cockpit. Also, on account of my back being higher than my head, my dress inflated more and more with air, and that made it harder for me to do anything.

"Happy days were here again, when I finally got a signal through to give me slack. I was then able to clear myself, and the body was removed without further difficulty."



We sincerely wish to thank the blood donors of the Wing Dept. who tried to save our beloved son. Also the other boys who tried to. We also want to thank the boys for the flowers and donations.

Yours truly, Mr. and Mrs. Albert Berg.



Tank Reporter Ben. J. Duffy and Mrs. Duffy are now boasting, "About my oldest boy . . ." Robert Thomas Duffy . . . Congratulations . . . All doing well . . . the "oldest son" checked in at 9 pounds and 6 oz.

TOOL DESIGN TIDBITS

By O'Donnell

NOW that football is in full swing the Tool Design is blessed with some real experts on the grand American game. Mr. Grady Doyle (Mickey Himself) Maguire who claims to know his Texas teams said, "The Texas teams play a faster and smarter game than West Coast teams and have a higher national rating." Well I believe there is room there for debate. The last time I drove through Texas all I saw was wide open spaces and a lot of wind.

Eph Mench our bridegroom said, "Talk about your blackout in England." It seems when he goes home he must blackout his much-loved pipe or start ducking glass-ware. George Gerstmeier has found a way to get in the house with his pipe. "What kind of perfume do you use, George?"

Young Ed Gurling, the boy with the hair cut, is seen near Mercy Hospital a lot. "Is someone sick, or have the nurses got you, Ed?"

Roy Smeltzer is planning to bring the boys some fruit from his ranch in La Mesa. "We're sitting tight and waiting, Roy."

George Denton our chief of the files is buying a car. Said he could not find a girl with one. "Here, here, girls, take a second look at that man."

Dick Perry said he wants an office with no doors or windows so he can get something done without being stopped every minute or so.



Have you seen Sharp since his Columbus Day mumps? He tells us now he didn't know that October 12th was a working day.



Patricia Ann Granse, is the name of the little lady born to Mr. and Mrs. Wm. Granse on Sunday, October 15th. She checked in at 6 pounds and 12 oz. Dad Granse is Night Drawbench foreman.



Who was the fellow who spent \$2.95 for bowling shoes, then couldn't bowl 295 in three league games. See Otcho, he knows.

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THINGS THAT COME OUT AT NIGHT

By Craig

WE dedicate this column to those brave souls who labor diligently between dusk and dawn. In the Consolidated family they are affectionately called "night owls."

The Wing Dept. comes up with the story of the month. It seems that Harold "Lightnin'" Schnaubelt has particularly bad luck as a hunter. In all cases he comes home sunburned, bruised and worn out, but to make things more humiliating he seldom gets his game. Harold has been trying all season to bring down a deer, but just hasn't been able to make the grade. However, the deer helped all it could.

The last time our hero was out the pace became a little too fast and he sat down to rest a moment. The deer hearing no sound of pursuit came back to look things over. It found Mr. Schnaubelt blissfully slumbering. Now being a sensitive deer, and full of the spirit of the chase it was deeply hurt. Angrily the buck pawed the earth. To no avail. Finally in sheer desperation the animal came closer and began scraping its horns on the nearest tree. With a start "Lightnin'" woke up. In frantic haste he reached for his gun, took deliberate aim and drilled a tree trunk two hundred yards away. The buck, seeing this, gave up in disgust and dejectedly fled.

While still "out of doors" we must mention Dick Moore (Wing). His chief diversion is hiking along the beach collecting curios. It is said of Dick, he has probably covered more miles of beach in this county than anything except the tide.

Dick Emerick (Night Supt.) feels that the crib inspectors should be taken to task. Whenever it is necessary for Dick to open the crib at night he comes off second best, with either a broken fingernail or a scratched knuckle. It does seem strange that a department using such precision in everything should have such an utterly miserable lock. Dick says, "I don't know whether they are just locking up at night or setting a trap for me."

Genial Ross Dilling (Night Foreman Paint) is apparently becoming more affluent all the time. Perhaps it is the cream-colored Stetson, or maybe it's the new apartment, or it might be the interest Ross shows in Hank Neimeyer's olive ranch, which is for sale, dirt cheap, since Hank fell out of a tree and broke his best ladder.

John Payne (Draw Bench) who is vitally interested in his department's welfare, wants to know where he can find a coach, who can get a basketball team out of a boilermaker, two ex-soldiers, an ex-sailor, a truck driver, a fisherman and three broken down roller operators.

Up until last night Bill Gramse (Night Boss D.B.) had what is commonly called "telephone jitters". Every time the phone rang Bill would jump two feet straight up and land running. Today Bill is bragging about a 6 lb. 4 oz. girl. Congratulations Mr. and Mrs. Gramse.

Anyone who feels that night work might upset his social life should contact Bob Romet (punch press). He manages very nicely between 8:30 and 9:00

although Bob sometimes frets because "tempus fugit."

Leading the vital statistics paragraph this month is Sandra Ellen Larseval 6 1/4 lbs. of joy. Roy Larseval is the proudest daddy in the Machine Shop. Of equal importance is the marriage of Bert Strom (Tool Room) to Miss Vivian Hoff. Don't let them kid you Bert; 50,000,000 husbands can't be wrong.

Ted LeLesch has been holding out. On August 18 he was married to charming Helen Moody. On September 11 he re-entered State College to continue his engineering studies. Every night finds him in sheet cutting.

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PRODUCTION MINUTES

By "Brad" Bradshaw

Being confined to a swivel chair in the Planning Office and in plain sight of the boss, this edition of our column has been rather hard to get together. They warned me that a dispatcher was on the same basis as a "nag"—when his legs go bad he is ready for the pasture or glue factory. So after coming loose at the joints and losing a few bulkheads and hulls, I fitted myself with a set of "cheaters" and joined the "white collar" boys but have found it mighty hard to keep a collar white during the entire week. I will probably have to buy another shirt, but it's nice to be able to remove your shoes and work in comfort. Hope the local Union doesn't begin to yell about that. Ray Hartmeyer made the mistake of cutting a notch in his desk for each mistake in my work and now finds his "mahogany" resembling a "termite mass meeting" with European dictator ideas.

My next door neighbors, Bill Liddle and Roy Coykendall, furnish an inspiration to "do or die" in accomplishing their goals, whatever they be. Bill has worked out a plan where ornery Cupid is going to have a tough time missing the "bull'seye" in that archery game of his that has caused William more palpitations of the heart than a seismograph reading in Los Angeles. Bill is now dating "twins" and can't tell them apart but believes there is security in numbers. How true, how true, but two headaches are also worse than one. Roy's aim (aim being the greatest handicap) is to get that buck before the

season is over. Poor Roy has tried everything but a bowling ball and has even offered to buy one from the reservation. To give him his due credit his alibis are better than "Howie" Bell can produce after a sorry game of football by U.S.C. On the other hand Bob Morse has finally agreed that Washington needs more than alibis this year. Maybe Oshkosh and Slippery Rock should be scheduled next year. Will I duck when I see a "Husky" grad headed this way.

"Stop Harold I forgot my teeth" yelled by George Young has turned that tired homeward bound troupe of Harold Brown, Mac McGuiness, "Min" Mineah, and Ted Buteau back toward the plant for the last time as George has bought a set of spares. The new "nippers" have a different shape and tone and are designed chiefly for "mastication purposes" and home use as talking is unimportant except in the shop. Harold feels much relieved now as he worried over George leaving them in the car seat and getting one of his passengers bit.

Almost unbelievable but true we find Craig Clark is getting out almost every night without a "beef" of late. Yea, there's a catch as Craig is now doing the night dispatching. He is also saying what he pleases without interruption by becoming a fellow columnist and telling about the capers of Dick Emrick's band of "night owls." Craig is planning on attending State College, brushing up on some subjects so that "papa" can do the homework well enough for "junior" to make the grade. For that name contest in your

column, Craig, we suggest "HAM" for you can always furnish the egg. That sounded much better before I wrote it.

Against all traditions of the fair sex, Mrs. Grace Brown, wife of Jess, had a birthday which offered an occasion for several of the younger set to whoop it up a bit the other night. Why people celebrate someone getting old we can't understand, but it's *Consolidated* custom, so we joined in and brought a box of soap for a gift—no reflections on the family in the least—as everyone was perfectly clean, even to Pete "Hiderack" Brown (the Pooch). Ed Kellogg can verify this as he spent a great deal of time lying on the floor—claimed to have had a hard day at the office—Howard Gibson, Russian interpreter, did the best he could with what he had to interpret. Elaine Van Dusen and Glad Barstow furnished some swell music with Jess rendering a few selections and proving himself to be quite a "fiddler"—musically of course—Paul Gaughn, always thinking of his work, took care of all the "Spares" he came across. Of course Margaret, the wife, was there to keep him honest. Ed and Elissa Hager left a little early as "hubby" wanted to have a little stroll in the moonlight and enjoy the fresh country air.

Other guests who had their share of everything, including black coffee, were: Eleanor Tingley, Pauline Bright, Maxine Cutler, Gene and Elaine Van Dusen, Kay and Kie Aiken, Anne and Hank Farrell, Ted and Norma Hacker, Robert Dunn, Elwyn Opperman, and "Pop" Brown. The party broke up as usual when Bill (Homewrecker) Wiley showed up at the front door, which was the signal for the fellows to slip the females out the back and leave Bill alone with "Hiderack."

We can promise quite a bit of reading material for next issue, if everything runs true to form, as the greatest collection of God's gift to ammunition manufacturers go forth to give the ducks their best season's entertainment. The powder burners to whom we refer being Lou Miller, Bill Fleet, Les Matusek, Glenn Hotchkiss, Lloyd Bender, and Roy Coykendall and their day's activity will probably make the Siegfried Line seem quiet enough to hang the family wash on. Bender is taking along some decoys just in case he has to reciprocate to some angry hunter. Hotchkiss vows that when he returns he can prove it's lucky that "deers" don't fly. Lou Miller is taking a compass so that Matusek don't get lost in the lake, which along with car sickness presents quite a problem. "Rebel" Fleet says he will save his ammunition for a "blue bill" and make

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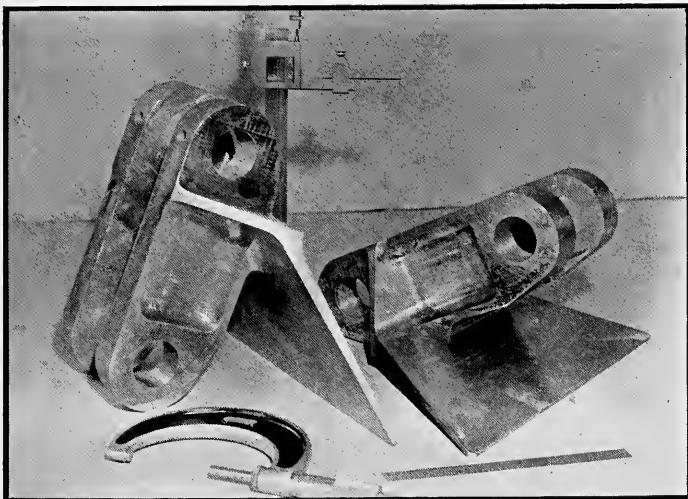
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When experimental production demands completion of an item, and tooling is either too costly, or the time available too short, the machine shop is called upon to reproduce the finished items. Ordinarily a die would be made and the resulting forgings would be machined where required.

In many cases similar to the above, the work must be laid out and the material "hogged" out until the object is somewhere near the required dimensions. Then the operations are carried on through a series of ingeniously planned routines until the finished product meets all blueprint requirements for dimensions.

Machinists with years of experience using equipment with the latest attachments turn out hundreds of jobs in the machine shop annually. They are carefully supervised and aided by Henry Golem, Machine Shop Foreman, and his assistant, Bob Williams.

In the group of milling machine operators turning out work such as the above you will find Walter Herchold, Paul Matson, Paul Schneider, Fred Hudson, Jake Frichtel, Lenny Weber, Carl Snyder and Karl Kutzke. They can well be proud of the work they are turning out.—L. G. B.

believe it's a "Yankee" to assure him of his quota. Roy invites his friends to a duck dinner and says "I will bring the duck."

"Army" Armstrong reports another deer, and Al Ballard continues to belittle. Al says "Army" has a friend who traps the deer and after getting him tied up, he places the gun in a rack and levels the sights for "Army" to pull the trigger.

Keeps him honest I suppose. But anyway "Army" is still getting fat on Venison while Al is having his eggs, as usual, with "sowbelly."

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FINAL ASSEMBLY SQUEALS

Jim Burney says he is going to join the Iron Workers Union, now that he has been building those new engine bucks.

Willie Robinson says, those new starting gates at Bay Meadows haven't helped him any. Maybe your horses are strangers up there, Willie, and they need someone to show them the way.

Mussen says the brakes on the Fords are not so good. He can push his right down to the floor but it doesn't do any good, or maybe it was the gas pedal he stepped on.

Maving says he is looking for some stronger riders. The boys riding with him now pushed him all over the lot the other night and still the car wouldn't start, or maybe he forgot to turn the key on.

This fellow Ryder sure tells some tall ones. Ask him about that Barber story sometime.

The Final Assembly is getting to look like a "strip tease" in the morning with our gypsies, Brennan and Keith.

Andy 7154.

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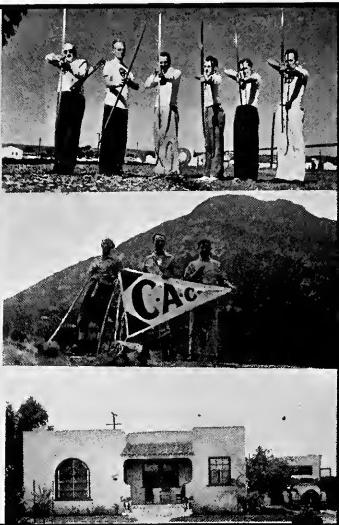
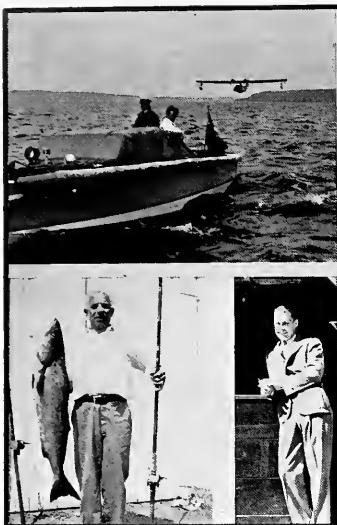
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SAFEWAY



FROM THE ALBUM . . .

Top left: The model 28-5 alighting at the Botwood, Newfoundland Air Base. Top right: Archers "Bill" Gilchrist, "Bernie" Swartz, "Russ" Kern, "Speed" Gilchrist, "Les" Crawford, "Spotty" Blair. Bottom left: Otto Dudzinski, who, according to No. 2905 "Claims he caught this one," but we have our doubts . . . there are a lot of fish markets in this town. Anyway Otto says it weighed 36 pounds. (It's a White Sea Bass and was "caught" off Point Loma.) Center: Hal Leppart, who is a whizz at the Bowling alleys. Right: Picnic mountain climbers of El Capitan: Henry Mandolf, Russ Kern, Johnny Glenn. Time up, 1 hr. 15 min. Down, 50 min. The flag was planted on top. Lower right: Another home that just missed the home issue . . . home of Jim Eiseman, Navy Inspector.

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THE TENNIS TRIUMPHS

By Matt Wielopolski

THE "I told you so" boys were few this tennis time. During the Singles play-offs, we tennis fans figured Mr. John Lockwood to win over Mr. MacGown. Yet, when the final match rolled around, we saw an unknown, Mr. Loyoko play for the tennis trophy. After three grueling sets of superb tennis, Mr. "Lucky" Loyoko emerged as our "champion." However, Mr. "Lefty" MacGown proved to be our "hard man to beat."

The outcome of one's tennis in this tournament, decided one in the order of the Consair Tennis Ladder. And from first of June 'till the last of August enthusiasm ran high, competition keen, and challenges plentiful. Throughout this tennis ladder time, Mr. Loyoko proved to be "Lightnin'" instead of "Lucky." Success comes and goes, but "Lightnin'" still was tops in tennis, until his withdrawal in the latter part of August. Then Mr. Harold Hudson and Mr. Bill Kilgore ranked one, two in tennis.

Immediately after the Labor Day holidays, the tennis committee interested the players from the Ladder about a Doubles Turney. Right then and there speculation ran high, with more challenge matches, practice time and lesson sessions. Finally pairings were made from the tennis Ladder. Then the draws were inevitable (this was my downfall). This time we tennis enthusiasts expected Mr. Hudson and Mr. Kilgore to battle it out with the highly touted team of Mr. Lockwood-Mr. MacGown.

And, as before, we again were the wrong prognosticators because Mr. Kellogg-Mr. Haas smashed their way to victory over Messrs. Brady-Wielopolski, and Messrs. Carter-Phillips scored a major upset over Messrs. Hudson-Kilgore to the tune of 6-4, 8-10 and 9-7.

Finally on an October Saturday, follow-



There's no ceiling to your pep, when you drink **new**, creamy-rich **QUALITEE SPECIAL CREAMED BUTTERMILK!** It's a real food drink . . . a cooler . . . and a pick-up rolled in one! You'll like it.

QUALITEE SPECIAL CREAMED Buttermilk

ing Friday the 13th, Mr. Lockwood-Mr. MacGown slugged and smashed their way in high of the first set. And during the second set Mr. Carter-Mr. Phillips were unable to cope against their cautious opponents. Then it came like a flash. With the set score 6-5 and one point away from game and match, Mr. Lockwood serving to Mr. Phillips in the opposite court. But lo!, "Red" returned favorably "Lefty" did likewise to Mr. Carter. "Cagey" Carter slammed a perfect placement at "Johnnie" Lockwood. That evened the score. Again, "Johnnie" served, this time to Mr. Carter, but "Cagey" got hold of a good one, right here, "Lefty" returned a dandy shot between both "Cagey" and "Red." And this went on for some time. Finally, "Lefty" won the leading point offensively, and "Johnnie" smacked a perfectly placed ace service, a very aggressive shot, past good ol' "Red", thus ending another high calibred tennis match. The fine teamwork and perfect cooperation of Mr. Lockwood-Mr. MacGown won for them two gold trophies and earned for them the distinction of Doubles Champions of *Consolidated*.

Last but not least, the Tennis Committee extends the heartiest "thank you" to both the Abernathy Sport Store and the Folsom Tennis Shop for their donations of these gold trophies.

The New Fords, Mercurys and Lincoln Zephyrs are now on display . . .

See
John
Clapp



HILTON MOTOR CO.

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A FEW WORDS FROM THE MAINTENANCE PAINTERS

By Odin L. Thaanum

If you look about you, you will see the accomplishments of this department—in cleaner, brighter surroundings.

These things have been done only through the cooperation of the entire personnel in the various departments, who, of necessity, suffered inconveniences from time to time.

For this cooperation we painters are glad to take this opportunity to thank those who have been so understanding and tolerant during our work.

At this time, however, we would like to draw your attention to a few in this organization who have not progressed mentally beyond their baby "Don't, don't" days. You know the type!

As babies, they marked all the walls in their home with crayons. As older children they mutilated every desk and piece of equipment upon the school premises. Later they pursued their questionable talent with questionable poetry in places where sanitation should predominate.

For these itchy fingered morons, we have the utmost contempt.

A man's work, done sincerely to the best of his ability, for the creation of something better, is a treasure the destruction of which is resented by every decent thinking worker in the world.

Our working conditions, here at *Consolidated*, have been made better by the light and freshness of newly painted surroundings.

Show your appreciation by respecting the efforts of your fellow workers.

If life is what we make it, some of us ought to be ashamed of our handiwork.

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Morgan's Cafeteria

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Between Broadway and C St., San Diego

Open Letter to Al Leonard

19 October 1939

Dear Sir:

Do you think you will have courage enough to dare to go out into this poison-infested country to convince yourself of the viciousness of this fatal weed, poison oak?

We will be delighted to have you as our guest in our poison gulch hide-out and assure you the care of a doctor and nurse from a possible attack.

In case you should get cold feet on your way up, we will furnish the hot water bottle. An occasional visit with mother nature makes you feel like a spring chicken, going back to work Monday morning, and after you have tried it, your lips might utter those incomparable words, "Ain't Nature Grand!"

N. Tuevesky.



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It's Model 31

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It's FORD V-8
MERCURY V-8
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See them--Drive them

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India at B St.
also CORONADO
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Lincoln Division • Columbia at B St.

BOWLING NEWS

By H. K. Clay

Three teams, Production No. 1, Purchasing and the Engineers are tied for the league lead of the big 14 team circuit. Each team has won 7 points and lost 1. The Sheet Metal aggregation is in fourth place with 6 points won and 2 lost. The Tank and Raw Material quintets at the bottom of the list with no points credited to either team.

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Stop-in today, tomorrow or anytime...choose the Clothes you need to be attractively dressed, and just say "Charge It." You'll find the smartest new styles for men and women at Bennett's and one account answers for the entire family. Terms are arranged to meet your individual requirements and you pay NO price penalty for Credit at this friendly store on Broadway between Fourth and Fifth Avenues.

Bennett's
425 BROADWAY
BETWEEN FOURTH AND FIFTH AVENUES

LEAGUE STANDINGS CONSAIR LEAGUE

	Won	Lost
Production No. 1	7	1
Purchasing	7	1
Engineers	7	1
Sheet Metal	6	2
Production No. 2	5	3
Hull No. 2	5	3
Maintenance	4	4
Machine Shop	4	4
Hull No. 1	3	5
Final Assembly	3	5
Finish	3	5
Experimental	2	6
Tank	0	8
Raw Material	0	8

ENGINEERS	Won	Lost
Armament	3	1
Loft No. 2	3	1
Loft No. 3	3	1
General	2	2
Flap	2	2
Fixed Equipment	1	3
Hull	1	5
Loft No. 1	1	3

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DANCING
 HEADQUARTERS
 LLOYD
 THOMAS'
 Orchestra
 EVERY
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 FRI.
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remember SAN DIEGO'S FINEST HOTEL . . . luxuriously appointed banquet rooms and Ballrooms, as well as distinguished cuisine await your pleasure. Complete facilities for every party, large or small, simple or pretentious.

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Remember the name—and SAVE!

Free Parking at Jones Service
Station—Across the Street

Davidson
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SEVENTH at G St.

EARLY FLYING . . .

The record-breaking flight of Wilbur Wright from Governor's Island up the Hudson River to Grant's Tomb and return on October 5, 1909, was made at a speed of 42.5 m.p.h. (average).

GOODRICH HAS MOVED

to

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Convenient Credit Extended to all Consolidated Employees

Goodrich
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Routine Flights Model 28 Flying Boats

OVER LAND OR SEA

Date	From	Miles	Airplane	Miles	Time	Number Airplanes	Number Men
1/28/37	Pearl Harbor	2,553	30,636	21H 43M	12	80	
4/13/37	Pearl Harbor	2,553	30,636	21H 21M	12	80	
6/21/37	Coco Solo	3,087	37,044	27H 58M	12	84	
6/24/37	New York	2,700	2,700	17H 3M	1	6	
8/ /37	Polar Area	19,000	19,000	.....	1	5	
12/ 3/37	Miami	2,300	2,300	14H 10M	1	8	
12/ 8/37	Coco Solo	3,087	43,218	22H 20M	14	98	
1/19/38	Pearl Harbor	2,553	45,954	20H 30M	18	127	
2/26/38	Miami	2,300	2,300	12H 35M	1	6	
6/ /38	New Guinea	7,178	7,178	.....	1	6	
8/31/38	Coco Solo	3,087	43,218	26H 40M	14	98	
9/ 7/38	Pearl Harbor	2,553	43,401	17H 17M	17	119	
1/11/39	Coco Solo	3,087	148,176	25H 43M	48	336	
6/28/39	Pearl Harbor	2,553	38,295	16H 17M	15	105	
6/ /39	New Guinea to San Diego via Australia, Indian Ocean, Africa, Atlantic Ocean ..	24,130	24,130	.....	1	..	
7/ /39	England	5,750	5,750	.....	1	4	
7/ /39	New York to Europe and return (3 flights)	24,300	24,300	.....	1	..	
9/14/39	Pearl Harbor	2,553	35,742	.....	14	98	
9/ /39	Pearl Harbor to Philippines	5,586	78,204	.....	14	..	
			662,182				



CONSOLIDATOR



The Consolidated Aircraft Plant, framed in Southern California Winter Foliage. . . See page one.

DECEMBER • 1939

HULLabaloo

By Al Leonard

RUSS KERN and Johnny Penfield were not scalped by a tribe of savage Indians, folks. While walking down the street one day, Russ came across a sign in a barber college window which read: "Bring a Friend and Get a Haircut Free." Russ immediately dashed away looking for some one he knew. Johnny Penfield, who managed to avoid his wife for one afternoon was the victim. Despite loud protests from Johnny, Russ dragged him to the barber college and forced him into a chair. When the job was done, Russ stepped out with a big smile on his face, congratulating himself for getting a free haircut. He sure is sorry now for the boys in the Hull Dept. gave him the works. Besides looking like he had the mange, Russ lost a good friend as Johnny will have nothing more to do with him.

The Hull Dept. boys are going in for badminton in a big way. The Muny Gym in Balboa Park is attracting more Hull recruits every week. All the broken-down Hull golfers who find the going on the links a little too tough should drop in to the gym for a little recreation.



The more waist, the less speed.

Let's Go ICE SKATING!



YOU, TOO, can be a "gay blade" if you cut a fancy figure once or twice on the ice! Low admission price goes lower when you buy a book of ten tickets. No skate rental charge for young people during week-day sessions. It's fun from the first day—try it! Instruction for beginners. Free parking.

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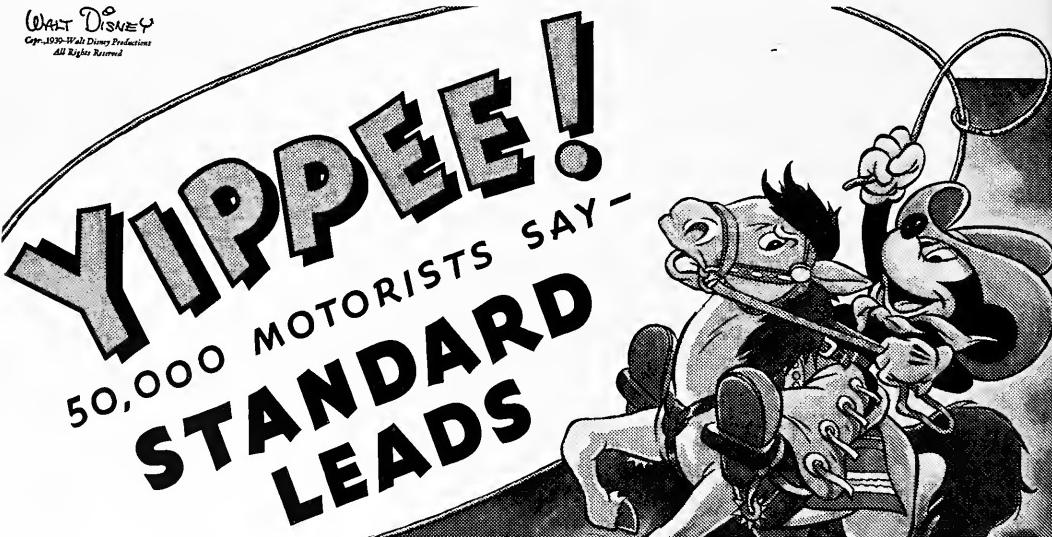
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When 50,000 motorists vote "Standard Leads"—that IS a Round-Up! A huge independent survey of Western motorists showed Standard rates first in not one—but SIX great motoring values: In inviting stations, courtesy, oil-around service, clean rest rooms, uniform quality gasoline, and gasoline performance! 50,000 MOTORISTS CAN'T BE WRONG—PROVE IT FOR YOURSELF!

STANDARD OIL COMPANY OF CALIFORNIA

More value per gallon with
STANDARD
Unsurpassed

CONSOLIDATOR

Volume 4

December, 1939

Number 12

WITH THIS ISSUE . . .

You will probably note that this issue of the *Consolidator* is larger (24 pages instead of 16). For some time an increase in size has been under consideration, but merely increasing the size is not as simple as it sounds. Believe it or not, it is less complicated from a printing standpoint to add 8 pages, than it is to add 2, 4 or 6 pages, to 16. This is due to the mechanics of printing. But to add 8 pages means the addition of 50% more reading matter, pictures, etc. And this, with a magazine the size of the *Consolidator* amounts to quite a bit.

As you know, the *Consolidator* is distributed free and is operated on a non-profit basis. The amount charged advertisers is used to defray the printing costs. Lately, an increasing number of local concerns and business men are expressing their confidence in *Consolidated* employees, by placing their advertisements with us on a regular advertising schedule. They make this larger sized magazine possible. This means they're spending money with us to make our magazine possible . . . as a matter of cooperation and appreciation, let's trade with them and make it mutually profitable!

CHRISTMAS SAVINGS ACCOUNTS

During the year 1939, employees of *Consolidated Aircraft Corporation* deposited approximately \$43,200 in their Christmas Savings Accounts. Checks covering these deposits will be mailed by the bank to employees about December 1, 1939.

In order that all Christmas Savings checks may be delivered promptly, employees who have changed their addresses during the past year are urged to notify the Bank of America at once.

The Christmas Savings Club for 1940 will be started about December 1, 1939. The Company will assist you to become a member by making weekly or semi-monthly deductions from your wages, and depositing the amount deducted in your Christmas Savings Account at the bank.

COULD BE WORSE

The average worker today will realize that his working conditions could be worse when he compares these conditions with those outlined in a set of rules for employees which was posted in a Chicago department store back in 1880. The following set of rules has had a good deal of publicity, but they indicate such sharp contrast with today's working conditions that they are worth considering over and over again. Here they are, exactly as posted in 1880.

1. Store must be open 6 a.m. to 9 p.m. the year round.
2. Store must be swept; counters, shelves, and showcases dusted; lamps trimmed and filled; chimneys cleaned; doors and windows opened; pail of water and bucket of coal brought in before breakfast.
3. Store must not be open on the Sabbath unless necessary, and then only for a few minutes.
4. The employee who is in the habit of smoking Spanish cigars, being shaved at the barber's, going to dances or other places of amusement, will assuredly give his employer reason to be suspicious of his integrity and honesty.
5. Men employees are given one evening a week for courting, and two if they go to a prayer meeting.
6. After fourteen hours in the store, the leisure hours should be spent for the most part in reading.

NEW EMPLOYEES

New employees of *Consolidated*: The *Consolidator Magazine* is printed of, by, and for *Consolidated Employees* . . . in other words . . . it's of, by, and for *you*. Therefore, if you have some news, don't hesitate to turn it in. There may be times when what you submit is not printed, due to any one of several reasons, but don't let that stop you. Shoot in some more next month . . . glance thru the pages and you'll see the type of material that is wanted. All articles or items must be signed, so that if there is any question in the spelling of names, meaning of the news, etc., we can check back and be sure

it's exactly right . . . if you forget to sign it's practically impossible to locate where it came from . . . so add your clock number as well as name. Let's be hearing from you!

ARMY AND NAVY AIRCRAFT EXPENDITURES 1920-40

The following figures appeared in the Congressional Record, in connection with the neutrality debate. All data are from official War and Navy Department sources.

NAVY (EXCLUSIVE OF ORDNANCE FOR AIRCRAFT)

1920	.....	\$ 4,616,000
1921	.....	4,531,000
1922	.....	5,380,000
1923	.....	6,167,000
1924	.....	5,853,000
1925	.....	4,923,000
1926	.....	8,235,000
1927	.....	12,340,000
1928	.....	8,554,000
1929	.....	18,480,000
1930	.....	14,245,000
1931	.....	12,199,000
1932	.....	8,715,000
1933	.....	7,208,000
1934	.....	12,273,000
1935	.....	20,691,000
1936	.....	26,561,000
1937	.....	20,963,000
1938	.....	27,263,000
1939	.....	24,238,000
1940	(Estimate)	75,494,000

—Office of Chief of Naval Operations,
ARMY APPROPRIATIONS FOR NEW AIRCRAFT

1920	.....	\$ 3,487,384
1921	.....	7,442,191
1922	.....	5,328,372
1923	.....	3,007,839
1924	.....	2,997,350
1925	.....	4,625,404
1926	.....	4,400,000
1927	.....	6,754,000
1928	.....	9,492,550
1929	.....	11,837,445
1930	.....	18,439,280
1931	.....	17,173,725
1932	.....	15,296,231
1933	.....	11,525,728
1934	.....	8,257,807
1935	.....	10,295,579
1936	.....	22,999,233
1937	.....	33,371,248
1938	.....	34,054,311
1939	.....	32,185,903
1940	.....	149,305,750

—War Department, Finance Division,

The office of the Chief of Naval Operations states that the following expenditures for aircraft (exclusive of ordnance for aircraft) have been estimated:

1941	.....	\$ 68,148,000
1942	.....	71,545,000
1943	.....	70,819,000
1944	.....	65,248,000



Off to Norfolk, Virginia, to work on the Navy Bombers, went this group from *Consolidated* (via airplane, of course!) on Friday, Nov. 10th. Their job will be the fitting of additional equipment on the PBVs stationed there . . . Do a good job. We'll have the home fires burning when you get back! Left to right, they are: Ralph Levine, Edward Berch, L. McCannon, Richard Senn, Stanley Hughes, William Robinson, C. E. Kinney, who heads the group, and James Good.

EXPERIMENTAL NEWS

It's a boy, Dennis Paul, for Mr. and Mrs. Felix D. Slavens of the Experimental Department on October 11, at Mercy Hospital.

Nov. 4th, a girl, Jacqueline Hogue, 8 lbs., 5 oz., for Mr. and Mrs. Roland Hogue, Experimental Department.



Brownie says:
"OKAY
CONSAIRS!"

When you feel like

Flying Low

take off in a

FORD V-8

MERCURY V-8

or Lincoln ZEPHYR V-12

See them now at

BROWN
MOTOR CO.
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LA JOLLA

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DRAW BENCH BENDS

By Fink

PATRICIA ANN GRAMSE, newest and latest addition to the family of William Gramse, was christened September 22. Sooo-Bill the proud papa decided that a bit of a celebration was needed to top off this momentous occasion of Patricia's life, or was it Bill's life? Therefore Bill decided he would sling a bit of shindig for us boys of the Draw Bench, for Bill is a sociable old reprobate and he figured that a big crowd could do more celebrating than just himself. Which is reasonable thinking, I guess.

About one-thirty that afternoon the boys showed up at Bill's house and started the ball to rolling. By two o'clock all fifty-one, and two-thirds of us were there, the one and two-thirds accounts for Red "Fill'em up" Robbins. By three, Tex "I'll fade ya" Graham had a nice little game of dice going, hoping that as usual he would win, but Lou "Pinch Penny" Miller finally broke up the game which was growing tiresome. Some thoughtful person then brought some fried chicken ?? out to us so as to take our minds off the beer and our financial losses. I've always been kind of doubtful about that chicken for Bill raises everything from Cain to white rats, and some of those too numerous so-called chicken legs were awfully small. Well, anyhow, after the eats the boys felt a little bit peppy, and our host and Steve "Rock Crusher" Stevenson put on a wrestling match. This proved to be a popular diversion. I guess we did a lot of yelling for more grunts and less groans because afterwards referee Englehardt called the match a draw.

After liquid refreshments we all figured that it was about time to go because our better halves were out looking for us, anyway it was eight o'clock and it was time for Patricia Ann to go to bed, so with all due respects to the little lady we all went home—satisfied. We all had a grand time and we're hoping that Bill will become a papa again soon, yes very soon.

When your golf ball drops in a mud puddle, that is a dirty lie.

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Unusual Gifts to beautify your home. Prices are popular on them all



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STANDARD
FURNITURE CO.
2368 Kettner at Kalmia

WOOD SHOP CHIPS

By J. E. Hodgson

AFTER being married fourteen years, Mary Ellen, the wife of Lewis Jones, presented him with a six and one-half pound baby girl, who is also named "Mary Ellen." Congratulations and best wishes to all, and many thanks for the cigars.

Lewis is a recent addition to night fac-tion of the wood shop family.

Sandor Goldberger, you know the guy, the little fat fellow to be found every noon hour near the lunch counter, regaling the boys with stories, though these tales would hardly bear repetition here,—well anyhow, he bought a home on 33rd St. near El Cajon, where from now on he will always be at home to anyone but collectors.

Another plump gentleman, Purdy by name, was carrying his tool box through the shop one day last week, and thereby hangs a tale.

This box is rather conspicuous, being painted red and black, and is carried by a strap slung over the shoulder.

On the day mentioned above, one of our new boys saw Fred Purdy passing by with his colorful box, and turned to one of the older men and asked, "Say Pal, is that guy selling Hamburgers, or what?"

It won't be long now till Thanksgiving, the "in-laws" delight, the time your stock goes up while the turkey goes down, when your friends flock around you (if the wife's a good cook) and the game of "Put and Take" is played. You put on turkey and hope that when Christmas comes around you will be invited to eat someone else's chicken (at least). Joking aside, however, we in the U.S.A. and particularly in California have much to give thanks for. Maybe it is just our luck to be here, instead of in Europe or Asia, to be Americans instead of French, English, German or Asiatic, luck or providence is all we have to celebrate Thanksgiving for, and believe me that's plenty.

Overheard in the Wood Shop—

One of the new boys approached Jack Baker the other day and inquired, saying, "How long should it take me to learn to be a pattern maker?" To which Jack replied, "Oh you serve about five years, then get fired a few times, then maybe you will know enough to get by." "The heck you say," came back the kid, "Why I can learn riveting in six months."

•

Work faithfully eight hours a day and don't worry. Then someday you can be boss and work sixteen hours a day and have all the worry.

GAS MODEL CHATTER

By James R. Lay, Sheet

Consolidated being well represented at a recent northern gas model contest.

Plane No. 53 is Joe Weathers' of Machine Shop.

Plane No. 50 is Jim Lay's of Sheet Metal.

Plane No. 52 is Chas. Underhill's of Wing.

Incidentally all three planes placed in the money. The three planes are identical except for the paint job. They have an 8-foot wing span with a 12-inch chord. All three weigh within a few ounces of five pounds each and are powered by 1/5th H.P. Brown Jr. gas motors.

It is not unusual to see thirty or forty *Consolidated* men at a northern gas contest. Even a few of the wives have "the bug", and build and fly these models. At the contest held in Bakersfield a few months ago there were at least fifteen of us entered as contestants.

Picture No. 2—is another 8-foot model built by Jim Lay who tells me the ship now has over 100 flights and still going strong.

Picture No. 3—How they sometimes make a one-point landing, and believe it or not, the owner of this ship had the wing back on, a new prop put on, and flew it within ten minutes after this picture was taken.

There is a semi-annual contest to be held in Los Angeles in the middle of December. They are offering \$100.00 1st prize, \$50 second, \$25 third, \$20 fourth, and so on down; altogether over \$300 in cash, and about 100 merchandise prizes. The entry fee is 50c. Generally about fifty percent of the planes are disabled. Therefore, anyone who has a good ship and is fortunate enough to get both flights has a very good chance for some prize money. Sometimes the poorest looking ship takes the first money. At the Aeroneers contest last year the contestant had never been able to get his ship off the ground; much to his surprise the motor started, he pushed it off and the model grabbed a thermal and was lost from sight after about thirty minutes. I think Archbold reported it going over at about five p.m. last year down in New Guinea. Some plane!



"What is steel wool?" asked the new clerk. "Well, steel wool is the shearings from a hydraulic ram."



BENCH NEWS

John Kara thought his wife had put him on a fruit diet the other morning. He took the wrong bag . . . when all set to eat his lunch he discovered he had a bag of pears!

No. 2930.



The dispatcher sent a report back to the stockchaser carrying the pencilled note, "Please write more legibly." The next day the stockchaser called the dispatcher to inquire, "What was that you scrawled on my report yesterday?"



A man's great ambition is to make a name for himself, and a girl's ambition is to see that she gets that name.



Learn to Dance Well

**Special Private Lesson Rates
in Ballroom Dancing**

6 PRIVATE LESSONS \$5.00

Class Lessons, including one hour lesson and 1½ hour Practice Dancing only 50c. Classes forming for Children and Adults in All Types of Dancing. Rates in Reach of All

HEMPHILL'S

SCHOOL OF THE DANCE
1039 7th Ave. F. 5750
1740 Uptown J. 9458

CHRISTMAS CARDS

BUNNELL PHOTO SHOP

1033 Sixth Avenue



IT'S up to me to turn in good articles from now on. That new skating scene atop the page sets a precedent for the writing below it. . . . In a roundabout way I've dug up a wedding for this month's column. Have managed to include a wedding in each column so far and hope to continue, even if I have to take the leap myself. (But I'm safe now 'till the next column.)

The above-mentioned wedding had Mary Gowdy and Frank Thompson, of our Engineering Department, as its principal participants. The event took place in Yuma on Saturday, November 11. The newly-weds are at home to friends at the Loma de Oro Apartments.

Mistletoe was once excluded from the floral decorations of churches at Christmas time because it was considered a tainted plant. It's popular now—but not in churches. Christmas wouldn't be Christmas if we couldn't walk under archways at home and not be (secretly, you've gotta use tact) anticipating a peck on the forehead.

December 16 is the date set for the girls' Christmas party. Arrange now to park your husband or best beau(s) at a prolonged movie.

Avis Clarke was paid a visit recently by Lucy (Schatzel) Haenke and her hus-

band. Lucy is a former member of our Accounting Department.

Interesting telephone facts: In a cigar store at Times Square in New York City, the telephone book has to be replaced every four days. In that short time it is thumbed to death by people using the telephone. . . . In the early days of the telephone the central operator's greeting—instead of the familiar "Number please"—was the seaman's shout, "Ahoy! Ahoy!"

Saddest story of the month: Little ink spots are blue because they know their father's in the pen. . . . Do your Christmas hinting early this year, avoid the rush. . . . Let Lucille Fisher teach you how to stay awake in one easy lesson. . . . welcome to Lois Campbell, new member of Planning Department, and Bertha Kuschke, new Purchasing addition. . . . Marcella Holzman is back from her vacation sporting a new Hollywood coiffure. . . . around this time of year don't say you have nothing to be thankful for. If for no other reason be thankful you weren't the turkey on your Thanksgiving table.

Bea Jackson donated the following brain storm:

Here's to the little Hindu
He always does the best he kindu
Way over there
They have no clothes to wear
So they have to make their skindu.

If you want to see Mary Eleanor Meredith blush, just mention the thought to her, and her face will light up like a Christmas tree.

Mary Nugent and Mabel Gilman can't seem to get together about the weather these days. When Mabel comes in carrying her coat, Mary goes out wearing hers. I think we'll have to replace Mabel as our weather forecaster. If we ask her how the weather is outside, she always replies that the "air is cold but it's warm out"—and we're still in the dark as to how the weather is.

SOARING NEWS

By Jerry Litell

We wish to welcome an old soarer to Consolidated, Harry Comer, jig builder who has sworn to keep up the reputation of the Soaring Boys—whatever that means.

Ray Parker of the model shop is soaring around these days, but then he just married a beautiful girl all the way from Boston. He is still in a thermal, no not turmoil—but he'll be our slope-soaring at Torrey Pines again one of these week-ends.

We hear that Jim Connery got so impatient one Sunday when the wind failed that he put in his half hour in a power ship, or nearly so, a Junior. However, he hasn't strayed, on the contrary he is even more convinced that soaring is the King of Sports.

Woody Brown's world record, the 280 miles goal flight didn't even get through that maze of red tape, international recognition, before it was broken by a Russian. But Woody has a new ship now, nearly twice as fast, so he will get it back next year, no doubt. He just test-flew our own new "crate" and pronounced her O.K.

By the way if anyone wishes to see some real flying just come out to the Torrey Pines Glider Port and watch us practice for the Annual Meet to be held in February.

Walter Koenig had better get that portable radio transmitter working so we can broadcast from the 2-place "Grunau."

3,500,000 Christmas Cards are received by the dead letter office every year . . . because of wrong addressing.

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High Hatters Compliment Consolidated

ON Friday, October 20th, at a meeting of the High Hatters, held in the main dining room of the San Diego Club, *Consolidated Aircraft Corporation* was honored with a Birthday Celebration. The occasion was the fourth anniversary of the dedication of San Diego's largest and newest industrial establishment, on October 20, 1935. Assembled for participation in the ceremonies on this Birthday Celebration were many executives of *Consolidated*, and officials of the City, County, Army, Navy and local business firms. The head table at which they sat was fittingly dressed with a huge birthday cake, above which rode a PBY model symbol of the company's effort through these last four years, which have elapsed since the dedication of our new plant.

President H. E. Rhoads opened the program with the customary club procedure and then turned the meeting over to High Hatter Edgar N. Gott, our own vice-president, who served as chairman of the day. After the introduction of members' individual guests, the guests of honor were introduced. In the absence of Major Fleet, who was in the east on business, these included: Secretary R. A. Stanberry (who also happened to be celebrating his own birthday); Treasurer William Shanahan, Vice-Pres. and Chief Engineer I. M. Laddon, Vice-Pres. and Material Supervisor C. T. Leigh, Vice-Pres. and Works Manager C. A. Van Dusen, Army Air Corps Representative Major E. R. McReynolds, and Comdr. F. W. Benson, aide to Rear Adm. Joseph R. Defrees.

As a bit of time was left before the formal program of speeches was to be broadcast over the air, Mr. Gott called upon Major McReynolds to say a few words and he spoke briefly of the scope of the operations conducted by the Air Corps representatives in inspecting aircraft projects.

Promptly at 1:15 the program was signaled to go on the air. Chairman Ed Gott then called upon Donald Hanson, President of the Chamber of Commerce. Hanson opened the tributes to *Consolidated Aircraft Corporation* in a brief address in which he deftly suggested that as a reversal of the High Hatter procedure of giving gifts, *Consolidated* might be induced to give gift of stock to each High Hatter as he passed out the door. Mr. Gott acquiesced with the proviso that the S.E.C. could be induced to sanction the move.



Above: At the San Diego Club speaker's table: Left to right: Mr. Ed Gott, Chairman of the Day; Mr. H. E. Rhoads, Pres. of the High Hatters; Admiral J. R. Defrees, Commandant 11th Naval District, and Leroy Richards, Chairman, Board of Supervisors, San Diego County.

Below: The Birthday cake starts to melt at *Consolidated*: Ed Gott, Ann Howard, Eva Wiseman and Lorine Mounce . . . and that poor, poor cake!

Emil Klicka, Harbor Board Member, and a key worker in inducing *Consolidated* to make San Diego its future home, recounted a personal phase of his endeavors along this line, stating that he happened to be "in" on the actual decision made by the Board of Directors at Buffalo, which was due to the coincidence of his vacation in the east, the meeting of the board and a hunch phone call of his from a nearby town.

Earl Prudden, vice-president of Ryan Aeronautical Co., was then introduced and extended appropriate congratulations and emphasized and commended the spirit of cooperation he had found to exist in the dealings between his company and ours.

Following Mr. Prudden, Edmund T. Price, president of Solar Aircraft spoke briefly of the early sales contacts he made with *Consolidated* in the east, and of his "selling" the advantages of San Diego on one occasion, perhaps to the detriment of an immediate order for collector rings, his company's specialty.

Herbert Fish, vice-mayor of San Diego

then extended the congratulations of the city administration on behalf of the city and the people of San Diego, expressing thanks for what *Consolidated* has meant to the people.

Leroy Richards, chairman of the County Supervisors followed, commenting upon the compatibility of *Consolidated*, an industrial concern, quietly operating a plant in very close proximity to the residential district.

Rear Admiral Joseph R. Defrees, Commandant of the 11th Naval District, paid a glowing tribute to our concern for our contributions to Naval advancement, with a summary of *Consolidated* achievements.

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Xmas



To all the folks at home:

We received your Christmas Greetings and were really thrilled to hear from you all. We are pleased to know you are so concerned about us and what we are doing. Sometimes in our daily hustle and bustle we forget to write as often as we would like to. Even though our letters seem far apart you are all very close to our hearts at all times.

We know your first interest was about the Kids. They are fine and growing—you just wouldn't know them. Bud is coming along fine in school. He is well along in his first year at San Diego State College. It's only about fifteen minutes walk away from our home. He is on the freshman football team and next year hopes to make a varsity letter. He still feels he wants to be an aeronautical engineer.

Jean is finishing her Senior year at

Hoover High School and plays in the band. That school really has spirit. They put on a show between halves of the football games that is wonderful to watch.

Robert is 13 now and is at Woodrow Wilson Junior High School. He is always occupied building model airplanes. We have a neighbor who is a Navy officer. We all had a rare treat when he showed us around the Naval Air Station at North Island and then took us aboard the Aircraft Carrier, "Ranger".

You mentioned in your letter about getting your coal in. We don't have to bother about that out here. We have a small gas heater and manage to stay very comfortable. Although we still shiver a little when we see pictures of snow in the papers. The Kids always get to feeling anxious about snow along about Thanksgiving and at the first report beg us to drive up into the mountains and play and have a snowball fight. It's loads of fun but they are always

glad to get down to the warmer air at home.

It's really funny when you consider it all. Last summer we drove from the lowest point in the United States to the highest in one day's time. In the winter we drive to Palm Springs and enjoy the sun and then look at the mountains whose tops are covered with snow.

We enjoyed the Golden Gate Exposition on our vacation trip to San Francisco. We had a great time all along the way. The roads are grand and we had loads of fun. The Kids got a thrill out of watching the big Clipper Ships flying in from the Orient.

In August we attended the races at Del Mar and "just about" broke even. It was loads of fun watching the horses but I guess we were all thrilled a little to see so many of our favorite movie stars in person enjoying the same races we were.

We can't forget about our Zoo. We spend lots of week-ends there and at Balboa Park. The gardens and pools and Palm Canyon are simply inexplicable, you just must see them sometime. Mrs. Martin Johnson just presented the Zoo with some new animals. They have just completed the largest bird cage in the world there. Full grown trees grow inside of it and birds as large as eagles and flamingoes fly about in their natural environment. The little penguins walk about the zoo grounds and are as tame as kittens.

Harry has a great time hunting and got a deer this year. He gave so many pieces away that we were lucky to have enough left for a meal. He had the hide tanned and is going to have the head mounted.

Last week-end the boys went duck hunting at Cuyamaca lake and we drove out to get them.

We all went deep-sea fishing off the Coronado Islands and caught so many fish that we had some smoked. The boys want to get a swordfish someday and I bet they will. You can catch just about anything that swims out here off San Diego.

Occasionally we drive to Mexico and on to Ensenada, a little Mexican village on the coast, about 85 miles below the border. It's very interesting and one week-end we drove to visit a settlement of Russians who have their own village down there. It was like visiting a different world.

We all thought of you on Thanksgiving Day. Harry thought it was too warm to cook so we drove up the coast and ate

Letter . . .

dinner at La Jolla in a very pretty hotel that overlooks the ocean. We talked about eastern Thanksgivings and snow and mitsens and laughed about it all.

We are all set for Christmas and as usual the kids want to have their pictures taken in the water on Christmas day. It is wonderful to be able to spend Christmas and all the year here in San Diego. Balboa Park is a mass of Poinsettias and they string lights through all the trees. Imagine sitting in an open-air theatre enjoying the bright sunshine and the grand organ music if you can. And then try and picture the whole scene framed in huge deep red poinsettias!

All the boys in the Plant enjoy some form of athletics. We often go to the Municipal Gym and watch the tennis and badminton games and often stop in to see the boys bowl if we're near town on Friday nights. Some of the boys go in for archery and Bud is making a bow from a length of lemon wood. We'll all soon find out how much Indian we have in us.

We made a trip to Los Angeles to see the Illinois-Southern California game that you probably heard on the radio. There was a great crowd in the Coliseum and we were surely pleased to be able to see a big game like that and enjoy the trip. It's only about three hours drive from here along the coast boulevard. If we can arrange it we're going to see the Rose Bowl game on New Year's day.

We are all happy about our work. It's always a good feeling to be busy. We cannot go into a lot of detail about what we are building but we can assure you they will be added to our regular line of "Record Breakers."

We are producing ships for both the Army and the Navy, besides doing a lot of experimental development work. As always you can expect something unusual when these ships are test flown.

You wouldn't know the plant, it has been changed around and so much new equipment has been added. We have a new

foundry and half a dozen new drop hammers that rival the huge presses used in the automobile industry for size. We have new welding equipment of the latest design and the machine shop and tool room proudly boasts of many pieces of new equipment. The sheet department has a pair of new presses that are the largest on the coast. We really are equipped to produce airplanes of any size and about any quantity so it looks like Uncle Sam only has to write out his orders and we can produce the goods.

Each year Major Fleet has the largest tree he can get hauled down from the mountains and set up in the patio. It al-

Two elderly ladies arrived at a football game just at the kickoff. After about ten minutes of play, one eleven made a touchdown and the same team kicked off, whereupon one of the ladies tapped the

ways has five to six hundred colored lights on it and is sprayed with aluminum lacquer. We have enclosed a picture of last year's tree. Isn't it a beautiful thing? At night it just makes the surroundings look like a marvelous picture and people from miles around drive down to see it.

We'll close now with the heartiest Christmas greetings; thankful for all we have and all we have to dream about and look forward to. We hope our happiness and contentment is being shared by all our friends. The warm feeling in our hearts makes the distance that separates us seem very small.

You'll be close to us on Christmas day as you always are every day of our lives.

Merry Christmas.

Yours with love,

The Consolidators.

other on the shoulder and said, "Let's go. This is where we came in."



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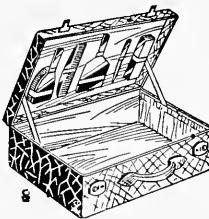
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THINGS THAT COME OUT AT NIGHT

By Craig

GEORGE WIRE of Hull likes to walk in the night air. He has even set some records in his specialty. Shortly after leaving work the other night George ran out of gas, a short time before he had run out of funds. He searched in vain for a telephone or a light. Not a sign of life anywhere. Finally he started to walk, thinking he might get a "lift." At University and 10th George stopped for coffee hoping desperately that some one he knew would come in. Not a soul showed up. Again he began walking. At last 7½ weary miles

from Consair and just 3 blocks from home a friend hailed him and asked if he would like a lift. Too weak to answer George just waved him on. He finally staggered wearily over his threshold at five a.m.

"Doc" Walker of First Aid has finally entered golfdom's "Hall of Fame." Doc now has that seldom achieved "hole-in-one." It was accomplished on the 195-yard 17th at Balboa Park. Doc says, "Surprised, I wouldn't believe it now if I didn't have witnesses."

The basketball season is under way. After two weeks of workouts, it now appears that Hull, Drop Hammers, Final Assembly, Machine Shop, Production and Wing will be represented by teams. For a while the "charley horses," "sprained ankles," and "lame" excuses for not showing up made it seem doubtful if a league could be formed. Now with everyone in tip-top shape, league play will start the last part of November.

Jimmy Kendricks, late of Production night force, is a real loss. Now that Jimmy is working days there is no one to pick football winners for the boys. With Jimmy and Bill Wilson, another handsome football hero, Production had the nucleus of a fine football team. Jimmy, a Virginian, also lists among his accomplishments tobacco auctioneering and some culinary successes.

If ever there had been any doubt about whether or not the night crew would stay awake, it may be dispelled right now. With that imposing battery of drop ham-

mers going full force it is difficult to think, let alone sleep. Some of the fellows complain that the jar has them bouncing half way home.

Merle Sage of Paint is a victim of suggestion. Merle drives a couple of passengers to work every night and they were so unhappy about the vehicle Merle drove that they frequently complained about it. Under this barrage of criticism Merle finally broke down. He now has a brand new Buick and we hear Galehouse is getting a cut of the salesman's commission.

Kel Aiken of Finished Parts Stock is a questionable electrician. While searching for a "short" in a lamp the other night he was finally able to blow all fuses in the house. Kel went next door to call the "Light Company" and but for his neighbor's watchful eye would have had his lights out too. When the electrician finally arrived Kel had developed a scheme whereby he could quickly extinguish all the lights in his block.

W. Houck of Hull had a good example of how the long arm of the law reaches out, the other night. Houck had been down near the border flying a large model airplane. It was getting dark and someone saw the ship land in field. Seeing a car parked nearby, the party took the license number and called the police. In a few minutes Mr. Houck was picked up on suspicion of smuggling. He was questioned and released in a short time none the worse for his experience, but late for his supper.

Every night at lunch period the Production group hold an "Open Forum." Recently the discussion has concerned "Li'l Abner" of comic strip fame. The general opinion is that Abner is "some dope." As Johnny Macy so aptly puts it, "If Daisy Mae were chasing me I'd sure find something to trip over."

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BOWLING NEWS

By H. K. Clay

TWO Consair quintets of keglers are stealing the 1939 bowling show which has been running at the Sunshine Alleys for the past two months. The Production No. 1 team is tied with the team from the Purchasing Department, each having garnered 20 out of 24 points. The number 2 team from Production is pacing the leaders with 17 points won, whereas the Hull No. 1 team is in 4th position with 16 won and 8 lost.

The Tank team has been revamped and is expected to make a better showing in the future than it has in the past. With the addition of John Liefeld, a finished kegler from Detroit, added to the Tank roster things ought to be picking up for this aggregation which has been wallowing in the mud near the bottom of the league. Capt. Ben Duffy is hoping that the old proverb about the first being last and the last being first will hold true in the weeks to come.

Don Drissel, who is one of the neophytes of the Final Assembly team showed the old-timers that there is nothing to the old bowling game after all. Don tallied a sizzling game of 244 in the third time at bat on Nov. 10th and copped the high individual honors of the week. Don has a league average which hovers above the 130 mark, and anytime a kegler bowls a game of 114 pins over his average he is really skipping rope.

Carl Heim and Irving Craig, both star keglers with the Engineering team of the big Consair league staged an impromptu battle recently that won the plaudits of all the spectators as well as aiding their team materially in their decisive defeat of the Sheet Metal team. Craig started out

with a humble 144 and Heim did himself proud with a 178. In the second however Craig went to town and returned with a 226 while Heim had to be satisfied with 168. Going into the third game of the series Craig registered 189 and Heim amassed 212 pins. When the final count was made Craig had 559 and Heim 558, a single pin separating the two players.

The two Freakleys who bowl on the Sheet Metal team are not brothers as is commonly believed around the Sunshine. Bert is the Uncle of Norman and has had a year's more experience at biffing the ten pins. Recently the nephew turned in a 399 total while the uncle scored a 392—the pupil finally turning the tables on the master.

Allie Brandt of Lockport, New York, who recently established a new world's bowling record of 886 for three league games is well known to many Consair keglers. Arnold Springer, Frank Meer and a host of others name Brandt on their list of friends and former bowling partners.

Some players, like the old vintage, improve with age and their first game is

CONSAR BOWLING LEAGUE STANDINGS November 20th, 1939

	Won	Lost
Purchasing	23	5
Production No. 1	21	7
Production No. 2	19	9
Hull No. 1	19	9
Engineers	18	10
Fishing	17	11
Maintenance	15	13
Experimental	15	13
Machine Shop	14	14
Hull No. 2	11	17
Sheet Metal	10	18
Final Assembly	6	22
Tank	5	23
Raw Material	3	25

CONSAIR ENGINEER'S LEAGUE

	Won	Lost
Flap	17	7
Armament	16	8
General	13	11
Loft No. 2	12	12
Loft No. 1	12	12
Loft No. 3	11	13
Hull	10	14
Fixed Equipment	5	19

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usually their lowest. Take Larry Granstedt of the Finish team for example. In the Finish—Production No. 2 match rolled a short time ago Larry started out with 140 and went 18 pins better in the second, coming through with 168. In the third game he tallied a 185 which is good going in any man's airship.

On the other hand there are players, who like uncorked gingerale, are best when first their strength is tested. George Galley of the Hull No. 1 team is to be classed in this category. George recently started out with 186, fell to 175 in the second and finally wound up with 150.



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Grizzly Bear Hunt

By Jack Thompson, Chief Inspector

I'm going to start this off with a warning. Never show the slightest sign of acquiescence to any request for a story coming from our wide-awake and energetic *Consolidator* news collector, viz: Norm Davidson, unless you fully intend to comply. (Note: I've called him several other things lately, but in print I'll have to give credit where it is due.) Where there is a story in the making, he has the acumen of a wizard. His persistence is beyond me. I nominate him for our dispatching department.

He heard I had been on a hunting trip, and when I returned, immediately asked me for a story. My reply was "Oh yeah!", but he failed to note, or utterly ignored the rising inflection, and every second day thereafter began pestering (and I do mean pestering) me for said story. I conscientiously denied making any sort of promise, but he called forth some of his colleagues, (I'm too polite to mention any names, but needless to say they are all in cahoots) who in turn distinctly remembered me saying "sure I will."

I've put him off for two issues of "*Consolidator*" but—just get him on your trail. So here goes—you asked for it.

I PLANNED a hunting trip for my vacation this fall, along with two friends who love to hunt and fish. We decided to hunt "grizzlies" and set about looking for a likely spot. Finding a spot where one can hunt these animals is no easy task, and we found about the only territory available was British Columbia, Canada.

We decided on the Caribou District of

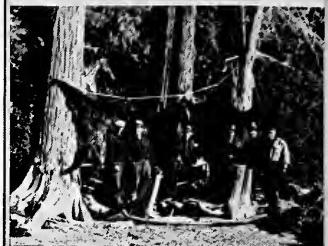
that Province and laid our plans accordingly. Said plans consisted of making arrangements for guides, transportation, schedules, open season dates, getting the necessary equipment, securing game laws, hunting licenses, gun permits, etc., etc.

We were greatly assisted in these preparations by a mutual friend of ours who has a hunting lodge in the district we visited, and has spent the summer there for fourteen years. I will refer to him and his charming wife later on in this story. His advice was indeed helpful and anyone contemplating a hunting trip into strange territory should if possible "ask the man who has been there." Your essentials are badly needed, but other than that—pounds plus pounds equal perspiration.

We left Los Angeles by plane intending to fly as far toward our destination as possible, or at least to Vancouver. In Seattle we were informed that no international flying of private aircraft was permitted, due to Canada having declared war a day or two prior to that time. This called for a transfer from plane to train, and re-consignment of our duffel, the majority of which had been shipped ahead by express.

Our next stop was Vancouver and we made contact with an airline operator regarding a plane to take us north. This line did not have a plane of sufficient size to take ourselves and our duffel, so we looked for other means of transportation.

A friend of ours living in Vancouver informed us that a road (such as it was) led into the lake we wanted to reach. This opened up a new field of transportation we had not thought possible, so we secured a man with a large seven-passenger car, who agreed to "haul our all." He did, but about all of the car visible after we loaded was the wheels. We left Vancouver at eight and travelled until midnight. Up and started again at six and arrived at our lake at noon. Some sections we traveled over could be classed as roads. Weather was typical (for the benefit of those not



Top: Ed Shelton, General Manager of Menasco Aircraft Corp., and his moose

Center: Three Grizzly and one Black bear skin on the line. Author, second from the left.

Bottom: "Pop" Cleveland of the Cleveland Pneumatic Tool Co., and Jack Thompson with 150 pounds of trout!

familiar with B. C.—it rained.) The scenery was beautiful through Fraser and Thompson River Canyons. However, our insufficient beam space, roads, weather, distance, overload, etc., offset the scenery. Fact is, I would never make it again under similar conditions unless there was the same hunting trip awaiting me at the other end—then I'd walk.

The discomfort of the trip was immediately forgotten due to the cordial reception we were given by our friends whom I made mention of previously as having a lodge there. They have a beautiful place, made of logs, on the shore of the lake. They are grand people and both love that part of the country and have been going there for years. They have both killed all kinds of big game, our hostess being one of the crack shots of the country, and has undoubtedly killed more big game than any other woman in the U.S.A. She is also one of the most charming and hospitable women I have ever met and our stay with them was one of the highlights of our entire trip. And here is a confession that

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I didn't make to my hunting companions. I made it a point to get all information possible relative to grizzly hunting from our charming hostess. I can guarantee it was expert advice. (Their lodge is covered inside with trophies she has killed.) As proof, I was the first to get a grizzly.

We arrived at the lake at noon on Monday and our guides were to pick us up Thursday and take us up the lake. This lake is sixty-four miles long and as wide as eight miles in places. It has a Y shape, and we were to hunt on the north arm.

We talked our hosts into going up the lake to the head of it for duck and geese hunting which opened about that time. They agreed, and we all went up in their boat which was a large cabin cruiser, fast and very comfortable. We were indeed fortunate in having this boat for the guides had open boats with outboard motors and it rained and snowed all the way up the lake. The scenery was gorgeous, shores lined with evergreens, mountains rising from all sides and snow-capped mountains in the distance.

We made camp that night and were up long before daybreak and out to the duck marshes. There were thousands of ducks and geese and we all had a good shoot.

At noon we went down lake about six miles to our guides' lake camp. This camp was a log house and contained supplies for both men and horses. We had four guides, a cook, packer and seven horses.

I think it of interest to mention that these supplies were trucked about seventy miles to the lake from the nearest railroad, taken by boat sixty miles up the lake to this camp. The horses were brought up the lake sixty miles on a raft propelled by an outboard motor. Supplies were taken to the camps up the mountain by pack horses. A packer with three horses made trips constantly to keep us in supplies while we were in camp.

We put our duffel on pack horses and we in saddles started for the base camp at noon. It was about eight miles, all up hill, and the trail was really something. To me it looked impossible for a horse to navigate but our horses would put the

proverbial Army mule to shame when it came to being sure-footed. The lake shore is heavily forested with cedar which merges into spruce, balsam and jack pine, as one ascends. The undergrowth is as dense as a tropical jungle. (That country has plenty of rain but they sure have vegetation to show for it.) Our lake elevation was about 2200 ft. and the timber line is approximately 6000. The highest peaks are 7,600 and those are covered with glaciers the year around.

We emerged from the timber at about 5,500 feet onto a big burn. This stretched to the north and northeast as far as we could see—over the mountains we were on, over the next on to and over the next range. The guides informed us that a forest fire had traveled over that section about 45 years ago. It is hard to conceive a forest fire of that magnitude, especially in a country with so much rain, but evidently this fire started during a dry spell and burned until rained out. They, of course, did not combat it as there are no inhabitants near this section.

I'll describe the country more fully as our guides informed us it was "grizzly country." The timber had been very thick on the ground and the fire so hot that nothing was left except the tree trunks. The majority have blown down, but several remain standing and are ghostly reminders of the tragic and costly results of fire in timber. The ones blown down are crossed in confusion; some are rotten, some partially rotten, some sound, and all without limbs but the majority blown down with the roots still attached. It is possible in sections to walk for a mile on

these tree trunks without touching the ground, and our boots had woodsman's spikes for that purpose. The ground is covered with low berry bushes (huckleberries) about six inches high, also the high berry bushes, from waist to head high. These bushes along with several other varieties of bushes make going extremely difficult. There are a few second growth spruce and pine but not many. This was bear country, so our guides told us, and which we were later to find out for ourselves.

We reached camp at dusk and it consisted of a cook tent and two fly tents for us tenderfeet. (The guides slept in the open.) It was cold and the cook had an excellent meal prepared and we all did it justice. The guides decided where we would hunt next day and informed us that breakfast would be at 4:30 a.m. It was, and we were called at 4. Out of a warm sleeping bag at that hour left me without an appetite for breakfast. However, that lasted for the one morning only—after that I ate, and how.

We were on our way at 5, just light enough to be able to negotiate the wind falls. Each of us with our guide, and in

(Continued on page 14)



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AERIAL MAPPIST . . .

TAKE a camera. Take it up with you in an airplane, and, while someone else pilots the plane, confine yourself to shooting pictures straight down. Then you will have a rough idea of the job H. A. "Jimmy" Erickson, "San Diego's Flying Photographer" has made his specialty.

"Jimmy" Erickson, as he is known everywhere, is San Diego's pioneer aerial photographer. He holds the distinction of having taken the first picture from an airplane, and of having made the first aerial map. He also took some of the first aerial movies . . . tied the camera on a strut and operated it with a long rod, crank and gears . . . He was outdated slightly on being the first to accomplish this however. But just who was the first to make movies from an airplane probably isn't important, because both parties were pioneering and had no knowledge of each other's work until years later . . . they were too interested in getting results.

Erickson started out on his career as an aerial photographer by taking his first airplane ride with Glenn Curtiss at North Island. On January 10, 1911, he went up with Glenn Curtiss and while out over the San Diego bay, snapped the first picture. If you've been up in an airplane, and snap pictures for a hobby, don't just add the two feelings and figure you have an idea of what this first picture-taking was like. It takes a bit of reflecting on the facts: The airplane used was an old Curtiss pusher. Pilot and passenger sat outside on the lower wing, because there wasn't any closed fuselage or cabin. They sat side by side, and the camera had to be steadied in the full blast of air rushing by at 60 per hour. It was not a "Snap" shot in any sense of the word. The negatives were hardly what they are today. They were plates, and they were slow compared to modern films, and the plane probably vibrated to beat all Harry. But to "Jimmy" it must have had a fascination all its own, for he got stuck with the "bug" and has been at it ever since.

In 1917 Jimmy Erickson scored another aerial photographing "first". This was the first aerial mapping. It was likewise accomplished by working against the odds imposed by the relatively crude equipment of the day, in spite of the fact that aerial photography had scarcely been born. Taking a whole group of shots was an experiment of no mean proportion. The area to be mapped was the Tijuana River, and it was done to aid the hydraulic engineers in the development of the water supply

in the Otay Valley. The Curtiss was again used. It had an absolute ceiling of just under 5,000 feet.

In this first of all aerial mapping expedition, some 60 shots were taken. At the low altitude they had to be snapped in fast order because the ground was slipping by close beneath and they might miss sections otherwise. The photographing was done with plates 5x7 inches in size and with a Graflex Camera. "Jimmy" held the camera between his knees. There was nothing below to obstruct the camera's field. You can realize the difficulties surrounding the exposed position and the fact that he had to have 30 plate holders.

When the actual mapping was underway, he had to work pretty fast: He had to expose his plate, put in the slide, pull out the plate holder, turn it over and put it back in the camera, pull out the slide, set the shutter, make the exposure, insert the slide, pull out the holder, exchange it for a fresh one, put it in the camera, remove the slide, set the shutter and expose. That was the cycle of operations per plate holder on which he got two exposures. He had to make an exposure each 8 seconds!

Nowadays he flies plenty high . . . usually at about 22,000 feet. He has done mapping from as high as 29,000 feet. At such altitudes oxygen is of course necessary. Jimmy went thru the period of "tube in mouth" oxygen days, and expresses his fullest appreciation for the new oxygen masks (described in September *Consolidator*). He always employs a pilot to do his flying as he has his hands full with the camera end alone. His aerial mapping has varied from an area of 20 square miles to 2,000, and he has handled a total of approximately 100 mapping jobs.

The 2,000 square mile aerial mapping feat holds some records for speed and the scope of the work. It was accomplished with a Fairchild "71" which is a special photographic ship, and the mapping on film was carried out at between 17,000 and 18,000 feet with a single lens camera. In 76 hours of flying time he and his pilot covered the entire area. Over 6,000 negatives were exposed. In ten weeks from the start of flying Jimmy had delivered 22 complete sectional mosaics and 34,000 8x10 prints complete with indexes.

The area covered was the Salinas Valley, from Paso Robles almost to the city of Salinas, and from immediately adjacent to the coast, inland to the San Joaquin Valley. Flight lines (back and forth across the area, averaged 75 miles each.) The



"In the early days at McCook Field, Da
a movie cam

job was so large that if one sector was hazy or cloudy they simply flew to another and went ahead shooting. At no time during the shooting could they see to the opposite end of their area. Doing the flying for Erickson on that job was Capt. Fred Powell, V.C., formerly of the Canadian Air Services. Jimmy gives Powell much of the credit because of his amazingly accurate flying which is highly essential in aerial mapping.

Before starting out on any aerial mapping job, the existing maps of the region are carefully studied and a plan of attack is laid out. This is a series of parallel lines of flight, spaced an equal distance apart. The pilot has to be an expert in map reading, and able to visualize these lines which are carefully laid out on the map, as though they are actually on the ground far below. Often much of the horizon is obscured because of the haze. This means that you've got to know every inch of the ground . . . probably all of which you've never seen from the air before! The chief difficulty, when flying an imaginary mapping line, is in being able to pick out enough road crossings, river bends and other landmarks, to serve to fix your location and flight line from high in the air. If it's a bit hazy and you are flying at 22,000 feet, it is plenty difficult to spot these fixes. Flying into the sun's reflection on haze makes the picking out of objects ahead practically impossible. Jimmy once had a pilot who had this condition to overcome . . . so every time he flew into the sun he looked backwards over his shoulder, and he kept



plane. Jimmy was in the back seat with a hospital."

smack dab on the line for the entire distance!

While the pilot is managing to stay on the imaginary line, the photographer isn't taking any chances of missing a bit of the territory that is slipping beneath . . . so in taking the pictures a 55% overlap in the direction of flight is allowed, and a 25% lap on the side. This is a safety precaution. If any one shot goes haywire for any reason, the area is covered by the previous and following shots. Before going aloft, however, it is necessary to figure out carefully what the interval between exposures must be in order to obtain this overlapping. The faster the plane travels, the less time between shots. If you fly higher at the same speed you naturally take in more territory below with the same lens and your time interval becomes greater.

It would look from this, that a slow plane would be an advantage . . . but Jimmy says no, and for a very good reason: The faster you fly, the more ground you can cover, and to do a job you may be forced to wait a whole month for one good aerial mapping day! By a good day is meant a relatively clear one, without clouds. Haze isn't so bad. You can photograph thru it . . . but clouds take big hunks out of your map and cast shadows, and they're just no go. Therefore when a good day comes along it's well to do the whole job at one "sitting" if possible, and a speedy plane is necessary. You can do 50% more area in a day than the cruising speed of the plane is 150 m.p.h. when compared with a plane whose

speed is 100 m.p.h. If you strike a good day and have a speedy plane you may be able to do the entire job (if it's a small one) but with a slow plane you may have work left over for the following day and it may turn out cloudy . . . then you wait, while your expenses pile up. It's best to have a speedy plane and to work fast.

Time of day for photographing doesn't make much difference, although the Army has set a practical limit for a good day as the time between 1-½ hours after sunrise and 1-½ hours before sunset. Jimmy has photographed as much as 8 hours in a single day, and with good results.

There are of course, more angles to this aerial mapping business than can be here outlined, and "Jimmy" Erickson has played a leading part in the pioneering and developing of the art. He was called to Washington at the outbreak of the World War to help develop cameras and aerial photography equipment for the Army. He gave six weeks' courses to the Army's students of aerial photography, calling upon the knowledge he had gained from his pioneering. He was called upon to organize the personnel of the photographic section, outline their duties and the procedure, etc.

At the beginning of this work photographic plates were used. Many foreign countries were at the time hobbling along under the difficulties associated with plates, but the U. S. Army saw the advantages of film and began its development, a field in which it is still pioneering. Jimmy got into much of this experimental work. He was in the service from 1917 thru 1920 and did some of his photographic work overseas. His work with the Army started in pioneering development and ended in experimental development. He held up to two years ago, the commission of Lieut-Col. in the Air Corps Reserve.

Naturally, with all the flying he has done he has had some narrow squeaks. He has cracked up while standing up in the rear cockpit and has flown in many an old time "crate". He has been in three aerial fires . . . in one he had no parachute. He had had eight of these close calls, then he piled up really good, in an automobile, and spent a spell in the hospital. When he came out of the hospital and went to work they practically had to lift him into the plane, but he was back in aerial photography. On the first flight, down in Mexico, the pilot came in for a landing, undershot the field, wiped out the landing gear and made a mess of the plane. Jimmy was taken back to the

hospital. He remained there for a while . . . but only for observation. He's at it again.

His job takes him places. He recently completed aerial mapping jobs in Maine and in Mississippi. By the time this goes to press he probably will have completed his latest aerial mapping job right here in California. He has to have headquarters of course, and has his photographic studio just across the street from the United Air Lines Depot on Lindbergh Field. The most popular prints he has today are those of formations of military planes in flight. Jimmy took several pictures of Lindbergh while he was here practically unknown, and was preparing for his flight. Taking a long shot, he sent some of these in advance to English and French aeronautical publications, just in case. They arrived just two days before Lindbergh and were an all-time "scoop." One English editor sent along a personal check for \$250.00. A French editor simply sent a letter of thanks! Also Corrigan "the wrong way pilot" was greatly interested in photography and mapping and during his stay in San Diego helped Jimmy a great deal in the various mapping jobs. Jimmy of course taking a great interest in Corrigan, who was supporting his sister and brother and had very little time for play, took him under his wing and lent him every assistance possible. But however great or small may be the appreciation of all this aerial work, one thing is certain: H. A. "Jimmy" Erickson, "San Diego's Flying Photographer" has contributed much to aerial photography and the recording of aerial progress.



"A photo taken of H. A. 'Jimmy' Erickson in 1920."

What's past is prologue . . .

GRIZZLY BEAR HUNT

(Continued from page 11)

a grizzly-killing mood. I had advance information on what it consisted of, but as to the others, I guess they found out that day.

Bear hunting in that country consists of getting a good location on one mountain that has an ideal view of another mountain, and sitting still and viewing all surrounding territory with binoculars, trying to discern any moving object. When a bear is sighted, all you have to do is get down from your mountain and up the other one without the bear smelling or hearing you. That may sound easy, but a grizzly has a marvelous sense of hearing and smell. (They can smell a hunter for two miles when he first goes into the woods—after a week in the woods, they can smell him for five.) The guides also claim these bears have a "grizzly hunch" which enables them to disappear even when all conditions are ideal for the hunter. Our guides said the bears were feeding on berries and would be out from early in the morning until about 10 o'clock; then they would lie down until about 4 in the afternoon, then come out again until dark.

The wind was wrong for hunting this particular territory that day, and by evening, was blowing a gale. Rain turned into

sleet and we arrived back to camp frozen and no one having sighted bear.

At dinner that night it was decided to go on to the next camp in the morning. As a word of explanation—these camps had been established prior to our arrival and consisted of tents and supplies. We left at daybreak and climbed up and over the mountain we were on, down into a beautiful valley past a lake that was a real jewel. (I had occasion to hunt one day on this lake and discovered how beautiful it really was. It had about a five-mile shore line, lined with spruce that stood so thick on the ground that one could hardly penetrate it. The water was crystal clear and the mountains rose straight up from it on three sides. I noted several otter playing along the shore and trout two feet long swimming around.) We climbed another mountain and at the top came out upon a high plateau with several small lakes. Our camp was situated on the shore of the largest lake and we arrived late in the afternoon, all suffering with "horse trouble." Just before reaching camp the guide in the lead stopped and pointed ahead. There were five blue grouse sitting on a log. We killed three with rocks (they just sit and dodge the rock until one finally hits them) and took them on into camp. The cook had them prepared next night for dinner and they were delicious.

All plans were made for the hunt next day and we were away at the usual hour. We got a break in the weather, for it cleared up and the sun came out during the day. No one sighted a bear, but everyone saw signs that were encouraging and that night at dinner we were all in high spirits. The night was clear and cold and the northern lights were more beautiful than I have ever before witnessed. No one stayed up very late to admire the beauty, as the sleeping bags held much more attraction for everyone. Fact is they are extremely difficult to leave at 4 a.m. on a cold frosty morning.

We were up at the usual hour and by sun-up my guide and I were quite a distance from camp and climbing diagonally up a mountain where the going was extremely rough. A combination of this roughness, the altitude, and my wind,

necessitated numerous pauses for a rest, and during one of these periods, I noted something on the opposite mountain that seemed to move. The sun was shining directly against this mountain and everything was favorable for good visibility. My guide was carrying my binoculars (I wanted to get rid of the weight and also he was more apt to discern any moving object in the distance, being accustomed to it), and I called for him to pass them to me. One look convinced me it was a grizzly but I let the guide verify it. This was about 7:30 and we started figuring out a plan of attack. There was scarcely any wind and that little bit was very treacherous, blowing every which direction. The guide decided it would be best to wait and see what the wind would do or else watch where the bear would lie down, then wait for it to come out in the evening. I immediately informed him that it might be okeh for him to play a waiting game all day, but as for me, I'd never stand the suspense. We would either get a shot or we wouldn't, so to get going. We decided on what appeared the best course and started out. Getting down the mountain we were on was not so bad, then we worked our way up the valley to get on the leeward side and we had also planned to get around and above the spot where we last saw the bear. It is never wise to shoot a grizzly that is above you—the reason being that a bear like a human can travel down hill better than up, and it is a certainty that a wounded grizzly is going to come at you, so the slower he comes, the better off the hunter. (For my part I prefer them in slow motion.) We reached a spot we had picked out from above, and started our climb upward. The slope was better than 45 degrees and trying to advance without making a sound, over ground that is next to impassable is some task. Try it sometime with a grizzly in prospect. The forty-five minutes we spent was the hardest thing I think I've ever done and it was not entirely due to exertion. My guide was in the lead and every so often would raise upright and look around. Finally after what seemed ages, he signalled to me that he got a glimpse of the bear. I got up alongside of the guide and just as I straightened up I heard a snort and knew the bear had heard us. I got a glimpse of it going over a little knoll, and fired. The shot hit it in the hip and it immediately turned and started back. My second shot hit it directly in the shoulder and it dropped instantly and never moved after that. (The guide afterward remarked that he had never in his sixteen years guiding

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seen a grizzly die so quickly.) The guides warn you to keep pumping lead into a bear as long as there is any movement so we made our way very cautiously up to the spot where it fell. We were below it about 100 yards and when I shot the first time.

It so happened the bear had worked its way down hill and in the direction we were ascending so that we were surprised at meeting it when we did, however, the assistance was appreciated.

The guide set about skinning it, and with my help, had the job completed in about two and one-half hours. It was a female grizzly about seven feet over all. I used a DeLuxe Model 70 Winchester, 180 grain soft nose bullet. We cached the hide before reaching camp and after dinner that night I sprung a surprise on everyone by producing it.

My friends had not been fortunate in getting one up to that time. One had shot at a grizzly but missed it.

They decided to go over to third and fourth valley (so designated by the guides). This meant taking their equipment and sleeping outdoors. They left on the second day after I got my bear. I had put in the time hunting for a big black bear, but had not sighted one so decided to go back to the lake and try for some of the trout I knew were there. We took a pack horse, and my guide and I set out for the lake. It was down hill most all of the way and we made it by late evening. Next morning I hunted ducks and geese until about 10 o'clock—then started fishing.

I'm somewhat reluctant about telling this part of my story. I don't like the idea of being the butt of the various and sundry remarks that will be made by some people that read this. Of all devotees of Izaak Walton I think a trout fisherman is the most tenacious. I have known men who tied their own flies, etc., who would spend all of their spare time whipping a fly wherever there was a likely spot, and if at the end of a day they would have an eight-inch trout in their creel, would be highly pleased. To many fishermen of this nature "there just ain't no such

thing" as what I'm about to relate. However, I've photographs to prove it.

I found fishing excellent and located the desirable spots so I could take my friends there when they arrived. I caught four kinds of trout. Trolling deep I got a large species the guide called "charr." I caught these weighing up to fifteen pounds. The guide told me they run as high as thirty pounds. Another large trout was the "Dolly Varden" and I caught some that weighed up to twelve pounds. I caught these by trolling, and casting a small spoon. Next was a "Silver" trout that run about 1 to 2 pounds. I caught this species on a casting rod using a small spinner. And last but not least were the "Rainbows" that were rising to a fly.

My friends got back to the lake four days after I arrived and both had grizzlies and were happy. One had bagged a black bear also.

I took one of my friends and his guide and we went by boat about six miles from camp to a spot where a stream emptied into the lake. The stream was very swift but shallow and had formed a sand bar out into the lake for a short distance. The bar suddenly ended and went straight down into very deep water. It was just a good cast from shore to this drop-off of

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the sand bar and where the water from the stream rushed out into the calm water of the lake. My friend rigged up his fly rod with a wet fly and tiny spinner and upon his first cast hooked a rainbow that weighed over three pounds. We landed them without a net (thanks to the sand bar) and eventually took the barb off our hook and turned the fish loose. We carried back to camp what we wanted, and in the picture we have over 150 pounds. I have dreamed of a spot like that but have never before seen one.

Next day we all fished and hunted ducks and made preparations to break camp the

following morning. That evening one of my friends killed a moose on the shore of the lake and we had our moose meat to take home and did not have to hunt for it. I had no desire to kill a moose as I have a beautiful trophy from a previous hunt, so one moose was enough for all of us. It is no trouble to get a moose there as they are plentiful around the lake.

The weather turned bad the following day and we had a rough trip down the lake but arrived safely. From then on the trip was uneventful, except plenty of trouble getting our trophies and moose meat across the border. This required en-

tirely too much trouble, time and red tape, and the Canadian Government would do well to eliminate this form of unnecessary annoyance to hunters from the States.

This was the most enjoyable hunting trip I've ever had. It was in marvelous country really away from the beaten path (the territory we hunted had not been hunted in three years). We had the best guides in the Province. They were hard workers, excellent hunters and fine fellows to be with, and they made our trip not only successful but highly enjoyable. No task was too hard for them—they just went to work and did it. I'm going back.

Snapshot Artists at Work...

A simple bulletin posted on rather short notice, asking for snapshots that *Consolidator* photo fans believed to be their best, or most unusual taken during the year, brought in prints galore. These had to be glossy in order to reproduce satisfactorily, and hence some did not have time to make up the necessary new prints of their favorite. Snapshots were asked for. Some sent in enlargements which could not be used. This is because in order to group them all together they have to be of about the same size, and an enlargement would have to be rephotographed, which loses some of the distinction of the original. To save space, portions of some of the pictures have been eliminated. But the entire print is perfect in each case. Here's some of the dope about the shots:

1. Irvin Roades . . . the night man with an owl on his chest. Boy what a man! Sheet Metal Dept. No. 1860.

2. A bit of still life, "San Diego County Fruits" . . . by Vic Perry of Welding.

3. Shot of Ed Chandler of Wings, considered one of the best riders of the waves in San Diego. Photo by Joe Baron.

4. Leave it to the ingenuity of *Consolidated Aircraft*! Here's a view with excellent effect taken with a box camera. A piece of red cellulose was picked up and held over the lens to obtain the lighting effect. Sorry we can't tell you who did it, because he only signed the photo "E.C."

5. "Doc" Walker of the Night Owls made a perfect 195 yard drive and became a member of the Union-Jessop, very exclusive "Hole in One Club" on Monday, Nov. 6th, on the Municipal Golf course. He demonstrated here for Stan Marcyan who snapped the shot.

6. A splendid specimen of the Joshua tree taken in Joshua Tree Nat. Monument by V. Perry of Welding.

7. A bit of "ribbing" . . . "Connie" Seaderquist doing a little chumming all by himself on one of his latest trips to the Coronado Islands.

8. Gordon Shoop (right) with one of the "Four Hundred." You can get more of this story from "Hullabaloo" this month.

9. Henry Bush of Sheet snapped this of the Golden Gate Bridge.

10. An odd rock formation near the Petrified Forest in Arizona. Ed Cavallin of Sheet in the foreground.

11. Lake Hodges in summer of 1937. Taken by Frank Korczykowski of bulls.

12. We knew somebody's favorite would include mermaids! Here are Lorain Joiner, Linora McMillion and Justine Shamkin. Taken by Al Shamkin, 4151.

13. A Wyoming Roadway snapped by Bill Gilchrist on his vacation.

14. Sent in by E. Chandler of Wings, here's a shot of Joe Baran and Al Shamkin (Metal Bench and Wings, resp.).

15. Here's an unusual bit of photography . . . and you don't shoot such pictures every night, either! E. Backhaus of Tanks set his camera the night of the eclipse, then opened it for a brief spell each five minutes, then each 15 minutes to catch on one film the progress of the eclipse. Some shooting!

16. Navy searchlight display taken from Point Loma by E. Backhaus.

17. Here's a beautiful bit of photo composition turned in by H. V. Atkinson (Wing Insp.). He's titled it, "Road to Palomar." Taken with Recoram 33 f.32 1/50 sec. Super XX . . . own development and printing.

18. San Francisco Exposition . . . a shot by Henry Bush of Sheet.

20. A bit of the San Francisco Exposition taken by H. Bush of Sheet, nights.

21. Our own *Consolidated XPB2Y-1* snapped by W. Fink of Draw Bench.

22. Glen Orr, a La Jolla "Bottom Scratcher" who catches denizens of the deep, like this huge lobster . . . with his bare hands. Photo by E. Backhaus.

23. Neil Norris No. 4229, submitted this and writes: "Milford Steele of Pinedale, Wyo., and a Buffalo head found in the locality by his brother Bill. The head is one of the largest, if not actually the largest ever found. Has a 34" spread and is 24" between tips of horns. It was a lot of Bull."

24. Where was this picture taken? Russ Kern of Hull Inspection took it at the Big Bear Color Movie Set, Oct. 30, 1939.

25. A bit of the beach dunes . . . by Henry Bush of Sheet.

26. Eddie Gurling of tool design crashes the pictures in this 1890 garb . . . but he had a good time on his vacation at Big Bear Lake around October 29th.

27. Our sign-painter expert Chauncey, "Art for Art's sake" Morton is shown giving the kiddies a thrill taking a diaper-pant turn on the Pee-Wee Track at Toddlesville. Our photographer reports the next picture would have been better, as the tricycle rode Chauncey around the next turn. Maybe it's just as well he ran out of film and spared us the gruesome spectacle!

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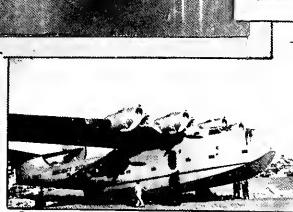
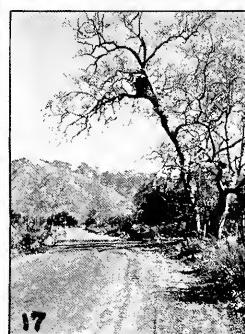
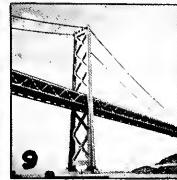
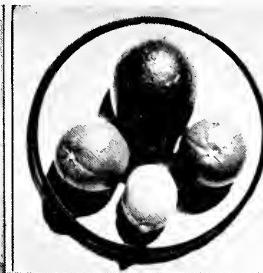
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Lum said, "No!", and pointed out to him that along its rim, there were no teeth in sight.

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MORE MACHINE MINUTES

By Matt Wielopolski

HERE we are with another article about the trials and tribulations of our Machine (Shop) Men. The material herein emanates from the debris of tool bits and chips; hot grease and oil; and from Red (scrap), White (salvage) and Green (Rush) tags. And, believe you me, if you can enjoy this column in the sense that I heard it, then these sentences will fulfill their purposes. To spread news, views, whims and joys, is our hope. We cast no aspersions, offenses, or reflections on anyone's person, name, character, or friends.

News While It's News, hot off the press:

Jim Patton: "When I feel like exercising, I just lie down and wait till the feeling goes away."

Walt Koenig: "It got to a point where I had to get a hair-cut or Concert lessons from Harry (LaBar)."

Louie Peters: "With them two turkeys put away safely, watch us (Machine Shop) gobble up first place in Bowling League."

Bob Ramet: "Sure, I'll take State College—for a dollar and three touchdowns."

Listen to this my fellow-machinists, ahem. Our new clerk, Owen Gandeel, played golf one fine week-end. Here's the way I heard it: Mr. Gandeel stepped up to the tee, aimed at the green (300 yards), took one swing and "s-l-w-i-s-h" (impact of club to ball), the ball landed about 35 yards from the pin (flag) of the green (incidentally the 16th hole at Balboa Golf Course). He immediately turned to Mr. Miller and inquired earnestly, yet sincerely, "What did I do that was right, Dan?" That day Owen shot a neat 77.

Gamblers don't gamble. Too bad—because Lloyds of London offer \$500 to 1 against anyone making a hole-in-one. However, on Monday, November 6, 1939, "Doc" H. C. Walker at 11:00 o'clock took a driver out of his golf bag and smacked a well-aimed ball at the 17th green. As he looked at the soaring ball it seemed to drop too fast. However, it landed about 6 inches from the pin, then it careened to the right and rolled into the cup.

Phone Jackson 2011 Chick Runyon

"The Blind Man"

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TOOL DESIGN TIDBITS

By Maguire

THE Chief rooter for "West Coast Football" moved. Too bad, Bob, but those Texas boys still play pretty good football.

Marcella Holzman, the prettiest in T.D. spent the "other end" of her vacation in L. A., and with tickets to the S. C.-Stanford game, wouldn't go. We can't blame her, we saw it!

If Wes Kline and Bob Hyder can get together, they'll see the "Homecoming" game in L. A., the 9th of December. By the way, Wes, we hope that new "kalsomine" job on your house doesn't wash off this winter.

Jones, where did you get that jaw? Ted, why are you buying a gun at this time of year? A lot of new faces: Bill Gilchrist says he'd like to see them all out for Badminton on Fridays. Incidentally, George Gerstmeier almost had to come to work in a wheel chair. He played one game of Badminton one Friday night.

Ask Hank Morgan how many miles it is from Wing to Loft. By the way, Hank, how about an introduction to that blonde that you were with at the "Fox," last Saturday night. Don't be selfish.

Knudson is the proud papa of—? At this writing, model unknown, P.S.—It's a "boy" at the Knudson's—namely Richard Jesse.

He: Why didn't you answer my letter?
She: I didn't get it, and besides I didn't like some of the things you said in it.

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PRODUCTION MINUTES

By "Brad" Bradshaw

HERE certainly was a scarcity of news this month. Probably due to the fellows having so much work to do that it kept them out of mischief. In fact Bert Gimber, fellow-worker, affectionately known as "Mr. G." (No connection with Hoover's F.B.I. men) suffered a "break-down" caused from some unknown "Brewster disease" but recovered rapidly and is back again with his pants hitched at the same angle and cigarette behind his ear. Joe Maloney and Frank Cross had a slight attack of the malady but survived. Says "Mr. G." "When they start building planes in one piece this work is going to be a pleasure."

Went out to see Ted Anderson's new home that is being constructed at Ocean Beach and found Kay, the wife, with hammer and saw, going over the house making changes. We cautioned her about getting into trouble over not having a "Union card", but she insisted that she was going to have the house built as she wanted it. Ted is to have a cozy "com-

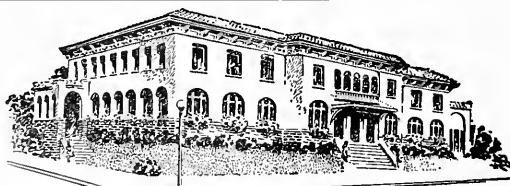
bination dog house" and garage in the back that he is going to be complete master of.

While we are on the subject of homes, we might drop a word to aid the good work that Jack Mulroy is doing toward getting together a stove, table and chairs for Lou Miller's "den." Lou was to have the fellows over for the little "social game" at any time he liked, providing they came up the rocky, snake infested canyon and into his lair in the back. Optimistic Miller was looking forward to giving the fellows a neat trimming and from the profits hoped to furnish his "barren abode" with proper necessities for comfort. Lou's luck had a bad run and now without a stove and still using the soap boxes for furnishings, he finds it too cold to entertain and keep his fingers nimble enough to deal the way he likes. So Chief Mulroy, with the help of Tom Butterfield, Connie Seaderquist, Benny Leonard, Dan Clemson, and Al Ambrose is asking for any old discarded furnishings that might be used to give Lou's "den" the "homey atmosphere."

Our friend and fellow columnist Craig "Papa" Clark, chief night dispatcher is the latest of the Mulroy "bunion brigade" boys to come limping to work. It seems "Clarkie" hates to admit that he is getting old and still insists on going in for "jitterbugging" and "goldfish gulping," basketball and other strenuous sports, that should be left for Russ Gaughn and the other youngsters. Anyway Craig finds that his creaky joints and over-used underpins will not stand the strain as they did a few years ago. So Kel Aiken, night mogul of the stock room asks me to appeal for him to taper off until such time

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as the "Fountain of Youth" is discovered. We were tipped off the other day by a native of the West Virginia hill country that "Mac" McGuiness, may be using an assumed name or alias, and the real name might be "McCoy." It seems, according to this informer, several years ago when one of the McCoys became of age and the "kinfolks" got together, as was the custom, to catch him and drape him with pants and shoes, he broke loose like a "scart rabbit" and last was seen tearing through the brush headed westward. The only way for positive identification, finger-printing being unknown in those days, would be to find out if there are several "buckshot" marks in "Mac's" back which happened to catch up with this McCoy when the "re-van-noos" caught him napping at the still and peppered a few into him before he got over the next ridge. Learning a lesson like that would be one of the reasons for "Mac" developing into such a capable inspector and keeping his eyes open to catch anything wrong. You can't beat the training you get guarding a still, for it's a serious business.

We have often read of fellows giving diamonds, automobiles, fur coats and the like to the lovely ladies that keep their hearts aflutter, but we never dreamed that one of our own department pals would fall into this "sugar daddy" class until we learned of the "yacht" Tom Jones gave to a certain charming lady. But as usual there are always bumpy roads along the journey for the pursuit of happiness, love and stuff like that. The bubble seemed to burst and Tom was left with a shattered dream and to salvage something from the wreck he went to the mantle, picked up the yacht, and headed toward home while the young lady gave him the "bird" and yelled "Indian giver." Says the "Jones boy", "When Freddie Rosso picks out another one to change my bachelor status, I want a 'land lubber' and one that will appreciate a horse and buggy."

Old Cupid is surely hitting the mark with that pesky arrow of his and the latest victims were Frank Fields of Purchasing and Kirby Higdon, former employee now at Vultee. Frank's venture on the sea of

matrimony leaves but a few of the "swash buckling" carefree unconquerable youths that came from Buffalo to defy the taunting smiles and flashing eyes of the California beauties, who have not met their "waterloo". Bill Holman, Frank Meer, and Tom Jones still face the world and cold winter nights alone, but the "parsons" are still taking in the "two bucks" and you can never tell what may happen.

Some choice morsels that reached us during the month—Bill Liddle's remark to a girl friend, "Honey, you are the third engaged girl I have taken home this week." She replied, "But Billie I'm not engaged."

Bill's cue, "No, honey but you are not home yet." (If the ring fits, put it on.)—Larry Boeing has been shaving with his shirt on which accounts for the inch long whiskers around his neck.—Owen Stockton, singing bartender, got a "five buck" tip for singing "I Kissed Her Lips and Left Her Behind For You" for some Minnesota tourists at the "Barn." Others in the place, not so plastered, offered him ten to quit. Some racket.

The development of propellers has contributed much to the speeds and altitudes possible with modern airplanes.



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HOT SHOTS FROM WELDING

By Willie Winchell, 3420

IN the hustle and bustle of getting the work out one day last month some one spotted Jaye Villain rushing around with a couple of travelers. He came darn near having a couple of oil holes drilled in him and being put through magnaflux and heat treat. Better watch out, Jaye.

Poor Art Bommer is just a natural born hard luck guy. Now he's in the same class with Al Capone. He got himself fined for tax evasion, the huge sum of ten cents. No it doesn't pay to forget that income tax, Art.

Welcome back, Al Gerald, who has been

a mighty sick boy. Hope you're o.k. now, Al.

Higby thinks now the honeymoon is over. His wife met him at the door the other night with, "Hello, George"—Higby's name is "Homer". Of course, wifey can explain by saying she thought it was someone else.

Frank Sechrist didn't know what else to do one week end a while back so he spent it at Paradise Valley Sanitarium having a tumor removed from his eye. We all hope you get to see the point now, Frank.

If Bert Bailey wants a job haunting a house all he has to do is wear those nightmares he calls shirts. Maybe he ought to join the Bull Fighters Assn. and get to be a toreador down Mexico way—he's sure got the uniform.

Wonder who it was that worked overtime one night and left his car sitting in the lot and went home with someone else?

Cap. Kogler and Jack Fleck have been doing some coon hunting lately. Sap says he's got hold of some of the greatest coon dogs in California. Wonder what color coons they were hunting. We never saw any pink ones. Only the morning after the night before.

Things come to a pretty pass when an old hand like Brownie forgets his keys

and has to saw his tool chest open—tch, tch—there ought to be a law—ch, Brown!

Now that Don Feeney has his new glasses we hope he can see right from wrong!

It's O.K. to go deer hunting but a guy ought to look and make sure it's a deer he's hunting and not some farmer's goat. At least Draper says he always makes sure the deer has more than three spikes before he lets go at any. Good boy, George.

If "Lulu" Miller keeps on with his "boiler making" he's going to have everyone of us deaf—Ye Gods what a racket!

We noticed quite a few of our gang watching the Armistice Day parade—Kurt Kruger and family came all the way from La Mesa to join in the festivities. By the way Kurt, how's all the "bantys"?

If Dick Davis spills any more "grape juice" he's going to look like Blue Indigo, or something.

It's o.k. for Gus Fougeron to be against a certain political issue but not his wife. Rumor has it, she laid the law down to Gus and "blooey" went his opinion. Yeah, we know, Gus—you can't get along with 'em or without 'em, Bless 'em.

C. E. Brown and his "Merry Oldsmobile" gosh darn near blew up. Connie says "look Daddy, just like Bing Crosby." Brownie says, "Quiet or Daddy will spank." Too bad Brown but you know how little children are.

Don James is either going to leave home earlier in the A.M. or get some fog lamps. The other day when the fog was so thick he couldn't see the front end of his car.

"That's the very idea I had three years ago!" "Yep, but the other fellow did something about it!"



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DRIFTING THRU DRAFTING

By Bouley

THIS writer is firmly convinced that there is nothing which can disturb the equanimity of a columnist more than to move into a brand new house. In spite of a month's vacation from literary ramblings, taken to "do up all the chores," we still try to concentrate on the amours of some enterprising young stress engineer or upon the swelling chest of some proud young father, when into our consciousness suddenly pops some sordid thought such as "Gee, I wonder if I put enough fertilizer on that lawn?"

Quite a few things have happened around the engineering department since we last removed the typewriter from its hiding place and dusted off the keys with breezes from the drafting room. Several of the more ancient happenings probably should at least be recorded for the sake of posterity.

In aircraft development a great deal of attention is paid to stability. So it was only fitting that Buck Growald be given a stable form of greeting as he returned from his vacation in Arizona. Henry Mandolf, curious as ever, handled the decorations and examined them minutely, but apparently satisfied that they were genuine he suddenly dropped the matter.

Then too there were all the boys who have taken the plea of the Chamber of Commerce for a "larger San Diego" to heart and have produced new citizens of one gender or another. Another Jewell was added to Barry's crown, and Sandy Falbaum and Ben Livers also added to their collections. Stan Whitaker once won a sophomore beard growing contest at the University of Washington from some pretty stiff competition in the persons of some swarthy stalwarts on the football team whose names suggested they might have played with Fordham or Notre Dame just as well, or that their cousins might have recently defended the invasion of the Third Reich. But now he has another claim to fame with his new daughter.

As to the brides' register, Carvel Curtiss went over to Yuma one day to meet his gal from ole Missouri and he married her, by gosh! And more recently several of

the last holdouts in the stress gang gave in and Franz Thompson and Lou Purcell now have new bosses. Purcell took a double beating for Notre Dame lost on the same week-end. This leaves only Lone Wolf Gerber, Frankie Goddard and Norm Robbins in the eligible class. But we understand that friend Goddard has found the street car service to La Jolla very poor and he has a bright new limousine, which is indeed a symptom. We could not establish the truth of the rumor but we have been informed that those cigars that Gerbie smokes each noon were originally bought to give away, but something happened and now he is using them up himself.

Walt Beyer and a friend of his ate off the mantel for a few days and bowled in a detached manner as a result of shotgun wounds sustained while hanging around a blind. This is not as serious as it sounds for now it is established that they were not "peeping Toms" but were too close to a duck blind while fishing.

Magnus St. Clair returned the other day from bonnie Scotland with a ver-r-r-y good "Hoot mon!" for everyone. We lost count after he had been asked for the 1163rd time if he saw any submarines on his way back. He told of one happening that would have quite a bit of appeal to several of the boys here. Because of the latitude Magnus claims that the boys can play golf at midnight. It's probably a good thing they don't have it that way here or with so much practice they would probably have to re-establish par on the courses. Heh! Heh!

We are told that if Washington Irving

were alive today, he could get ample material for a new Legend of Sleepy Hollow from the doings of one Alan Abels on week-day mornings. When it is Alan's turn to drive to work there is a sort of hysteria present in the homes of his three passengers until he actually arrives on the scene. Early before-breakfast phone calls arouse none but good wife Kay and young Tommy. With all due regard for the mental anguish suffered by his passengers and the nervous ticking of the time clock as it awaits the zero punch, we engender the opinion that any man who can train his youngster not to awaken him in the morning is entitled to all the sleep he can obtain by so doing, provided of course, that he does not lie awake most of the night in devising such legerdemain.

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What some of the fellows want for Xmas:

Jack and Woodie: "Ham and Eggs."

Ted Stark: A set of nippers or else ten pounds of turkey-burger.

Brownie: A quart of Old Taylor and a couple of straws.

Odin Thaanum: A dictionary with plenty of five syllable words.

Johnny Hunter: A pair of roller skates.

Ed Woods: A couple pounds of chawing tobacco.

Chauncey Norton: A jug of wine, lots of paint and a camel's hair brush.

Art Hubbard: He's tired of hooking yellow tail,

The blighter wants to catch a whale.

Jim Salter: A keg of unfermented grape juice.

Joe Fox: He still wants a boy, but is willing to wait awhile.

Tom Hill: An electric train for Junior and me, and a way to make Junior eat his spinach.

The rest of us will be satisfied with plenty of "Christmas Cheer."

D. G. Berger, No. 974.



Scientists are still vainly trying to split the atom. They should turn the job over to the boys who slice the ham for railroad sandwiches.



Poor Richard pointed out that it's silly to lock the barn door after the horse is stolen. A better idea is to turn the barn into a Little Theatre.

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FINISH NEWS

By Al Griffith

It's beginning to look like home again in the Paint Shop with a number of the boys back. Welcome back, boys.

If you hear Riffe going around singing, "Hi Ho Silver" and calling to Tonto, he's just campaigning for more safety Rangers.

Congratulations go to Benny Leonard and Orv. Hubbard on the completion of their new homes. I hear Benny has a special room for his rocks, or should I say specimens. And the Hubbard's cocker spaniel has taken over half of the place.

The reason Glenn Bo Vec is strutting around here lately is because he's boasting about a new baby boy. Congratulations, Red.

I understand that Lythe really enjoyed holding the front row at the smoker. Danner, Iverson, and Stewart were sure sore because they had to sit way back in the second row. Oh! say boys, how come you didn't get home until 4:00 a.m. when the smoker was over at 10:00 p.m. and Danner lost his tie? And VonMeeden really went

to town, if you know what I mean, at the Ryan Picnic too.

Bob Jurgensen spends his week-ends picking and packing his avocados and selling them. (One bottle of beer with each lug.)

Stewart says anyone who didn't get a ride over PBY-4 missed something. Where's Casey Jones?

On behalf of my mother and family I wish to take this opportunity to thank the boys of the Finnish Department for the token of sympathy at the recent death of my Father. "John Stark."

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INC.
AUTOMOTIVE SERVICES

32nd and University
30th and El Cajon

Consolidators



IT'S TIME TO GET YOUR OVERCOAT

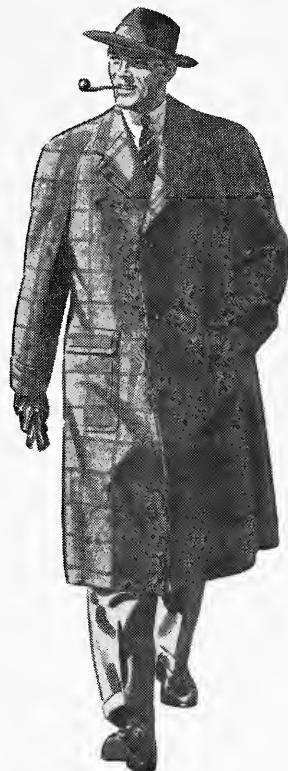
See how little a fine overcoat costs. Tops in style, fabric and workmanship... Raglans, Balmacaans and Polos. Fine Llamas, Coverts, Shetlands and West of England cloths. A \$10 saving for you.

\$20 \$25 \$30

"Charge It"

Pay weekly for ten weeks or—pay one-third each month. Small carrying charge. No charge if paid within 30 days.

It's easy to select gifts for men from these smart new suits, overcoats, tuxedos, slacks and hats. Why not give him a Foreman & Clark Gift Bond so he can choose what he likes best.



Foreman & Clark

FIFTH & BROADWAY • SAN DIEGO

You will find it an advantage to Enjoy Bennett's

Convenient
Courteous

CREDIT TERMS

NO DOWN PAYMENT
No Interest or Extras
NO RED TAPE

to purchase

Christmas Gifts to Wear

Be practical this Christmas . . . Give wearable gifts. . . Choose from the splendid selections at Bennett's and pay as Consolidated pays you. . . The entire family can use one Charge Account at Bennett's and you pay nothing extra for Convenient CREDIT. Stop in, let us show you our Christmas Gift Variety.

No Payment Until
January, 1940 . . .

Suggestions for MEN

- Lounge Robes
- Overcoats
- Tuxedos
- Ties . . . Belts
- Shirts . . . Hats
- Gloves . . . Sox
- Suits, etc.

Suggestions for WOMEN

- Fur Coats
- Negligees
- Fine Robes
- Dresses
- Fur Trimmed Coats
- Toiletware Sets
- Costume Jewelry

Bennett's
425 BROADWAY
BETWEEN FOURTH AND FIFTH AVENUES

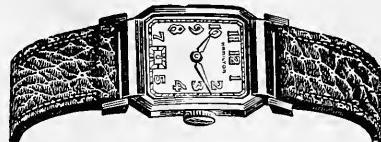
BARANOV'S are ready to be your Santa Claus this Christmas with the finest stock of nationally known quality jewelry merchandise in the store's 29 year history. "Friendly" CREDIT . . . Courteous Service.



Lay Away

Christmas Jewelry Gifts

now while stocks are best



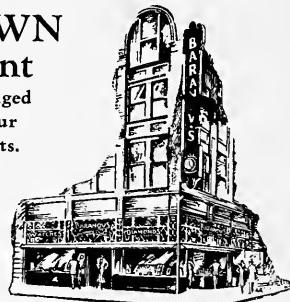
- America's Finest Watches
- Unsurpassed values in fine DIAMONDS
- Silverware
- Radios and Appliances

USE YOUR CREDIT!

No DOWN
Payment

Terms Arranged
to meet your
requirements.

100% Locally
owned . . . a store
with a personality.



BARANOV'S
Fifth Avenue at Broadway

20 125

—
BOUNDED BY
COLLEGE
BOOKBINDERY
SAN DIEGO, CALIFORNIA

